

Game of the month: STAR TREK GENERATIONS - how good?

over  
40  
new products  
reviewed

# PC REVIEW

THE COMPLETE GUIDE TO PC LEISURE

**WIN!**  
A brand  
new PC  
Page 31

## THE HOME OF THE FUTURE

- Automate your household using your PC
- Smart toasters, videos and coffee machines
- Plasma screens, 3D TV and mind-controlled games

### GREAT GAMES

Moto Racer  
Darklight Conflict  
Last Express

### TOP MULTIMEDIA

Space Station Simulator  
VR EarthQuest  
BMA Encyclopedia

### NEW HARDWARE

Eight storage drives tested  
Snappy video grabber  
A dual Pentium motherboard

### GET CREATIVE

Five works packages rated  
Corel Draw 7  
Creative Labs Blaster Keys

### ALL YOU NEED TO KNOW ABOUT FASHION

Look smart using the Internet  
and CD-ROM

### LATEST NEWS

Next Gen Processors  
Internet Graveyards

### HOW TO...

- Turn your PC into a TV
- Breed A-life Art
- Write a House Track
- Make your own Multimedia

### DARK REIGN

The next C&C  
challenger previewed

### VIRUS ALERT!

But have no fear, the latest  
Dr Solomons Toolkit is here

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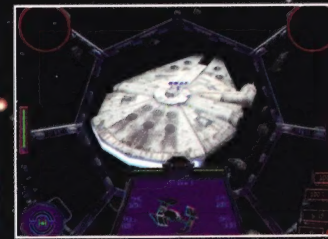
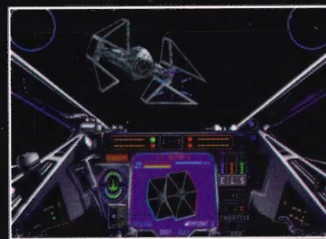
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IN X-WING™ vs. TIE FIGHTER™  
YOU WILL BATTLE  
HEAD-TO-HEAD AGAINST  
AN ENEMY MORE RUTHLESS THAN  
JABBA THE HUTT  
AND MORE SINISTER THAN  
DARTH VADER.

TODAY IT'S MICK. TOMORROW, THE GREATEST PILOT IN THE *Star Wars*™ UNIVERSE COULD BE ANDY, A DENTIST IN WOLVERHAMPTON. THAT'S THE BEAUTY OF X-WING™ vs. TIE FIGHTER™. IT ALLOWS YOU TO ENGAGE IN HEAD-TO-HEAD COMBAT AGAINST REAL PEOPLE OVER NETWORK, MODEM AND INTERNET. IT'S A REAL FIRST, AND IT'S IN REAL TIME. THE GRAPHICS HAVE BEEN GALACTICALLY ENHANCED. THE FLIGHT

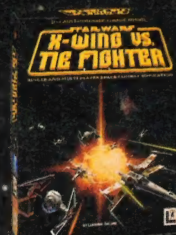
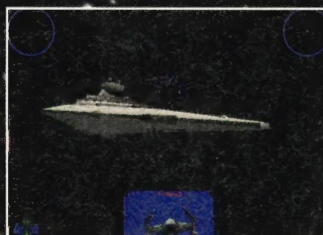
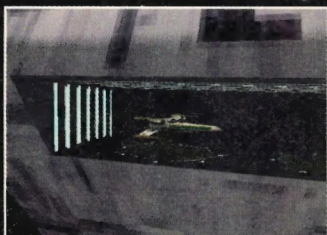






(Mick the mechanic.)

ENGINE IS PHENOMENAL. THE NEW MISSIONS ARE MASTERSTROKES OF SPACE MAYHEM. THERE'S EVEN SINGLE PLAYER CAMPAIGNS FOR AN ALL-NEW EXPLOSIVE EXPERIENCE. NO WONDER PC GAMER PROCLAIMS THAT "LUCASARTS IS NOW GRANTING THE WISHES OF MILLIONS WITH X-WING VS TIE FIGHTER". AND IF YOU DON'T BELIEVE THEM, JUST ASK MICK! <http://www.lucasarts.com>





# This month...

## Next Gen Processors

Our news hounds bring you the latest news on the next generation of PC processors. Will Intel maintain its dominance, or will new technologies reopen the doors of a free market in microchips?

## Dark Reign

An in-depth preview of the upcoming realtime wargame from Activision. We interview its creator and detail the improvements it's expected to make on C&C: Red Alert.

## Moto Racer

Pull up to the starting line and rev your engine with this graphically stunning 3D motorbike racing game. Could this be the best two-wheeler for the PC?

## Virus Alert

Viruses are a ubiquitous threat to your system, so if you regularly exchange files via disks or the Internet, it's essential to have the latest anti-virus software. We review the Dr Solomon's Anti-Virus Toolkit.

## How to make house music

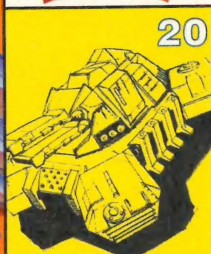
We bring you the software and show you how. You'll find the Music Machine demo on your CD, and a tutorial on how to use this impressive package in our magazine. Elsewhere you can learn how to turn your PC into a TV, breed some organic art and we also conclude our three-part series on making your own multimedia pop single.

# THE HOME OF THE FUTURE

Find out all about how your PC can take control of those tiresome little household tasks. Our feature will bring you right up to date on PC-powered automation, smart appliances, 3D TVs and the future of home entertainment.

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cover image by Roger Harris







## SPACE STATION SIMULATOR



Take a space walk with this fantastic MMX-enhanced demo from Maris.

**EXCLUSIVE**

PLUS: 100 pieces of clipmedia from IMSI, iPhoto Express, Medi8or Entrée 3 (full version), POD, Visual Home Deluxe, Sonic & Knuckles and more.

### CD REVIEW

THE BEST IN PC GAMES

**OUTLAWS**  
LucasArts is back in the saddle. Blast away in the Wild West with this demo.

**THEME HOSPITAL**  
Time to play doctor with this demo of Bullfrog's latest.

**2 UP TILT**  
SCI's brand new Pinball game demo.

**MUSIC MACHINE**  
Exclusive! Make your own House musical now.

**Visual Home Deluxe**  
A demo of the new version of the home design software.

## This month on CD REVIEW...

### Player

Theme Hospital, POD, 2 Up Tilt and Outlaws are among the top games on our CD-ROM this month. Excellent.

### The Works

Music Machine is one of the best crafted music-making programs around, and this month we've got the demo. Also in the Works you'll find Cybertation, Visual Home Deluxe, Cool Edit 96, iPhoto Express and Medi8or Entrée.

### Multimedia

The astounding Space Station Simulator from Maris publishing is our exclusive demo this month in this section.

### Pic 'n' Mix

Free! 100 more pieces of clipmedia courtesy of IMSI's MasterClips.



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Open up the disc label booklet for a quick reference guide to controls for the games on CD REVIEW. Turn to page 117 for your five-page guide to using the disc, including hints, tips and more.

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### 2 Up Tilt

Two-player pinball action as, quite literally, you've never seen it before. We preview SCI's upcoming pinball release.

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### Absolute Bedlam

The original *Bedlam* becomes the superlative *Bedlam*. Hot preview.

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### Everything you need to know about Fashion

Don't get dressed until you've read the latest fashion tips from the Net and CD-ROMs.

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### Win a new PC!

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Stylish yet minimalistic space flight fighting. Just how good is the latest game by Origin?

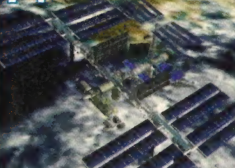
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# WELCOME

**C**hances are you're sick of all the election hype by now. Unfortunately, however, I'm here to promise you the same thing as Tony, John and Paddy. Yes, just as the vote-chasing politicians, I'm promising you CHANGE. The good thing is I'm not going to sling mud, bore you with claptrap on 'the issues' or comment on Mrs Blair's hemline. The change I'm talking about is going to directly affect you. Yes, we're going to redesign PC REVIEW. You may have already noticed that over the past few months we've been chasing much more cutting edge stuff in our news section and in our features, while continuing to bring you the finest reviews of games, multimedia discs, hardware and practical software. From next month, our updated editorial policies will be accompanied by an exciting new design. Naturally, my wish is that you will enjoy the mighty fine issue of PC REVIEW that you now hold in your hand. But equally I'd like to invite you to join us next month as we start the next chapter in the history of PC REVIEW.



Garrick Webster, Editor [pcreview@futurenet.co.uk](mailto:pcreview@futurenet.co.uk)

## YOUR COMPLETE GUIDE TO PC LEISURE

Welcome to the UK's most discerning PC magazine. Every month PC Review brings you...



### NEWS

The PC industry is an exciting one, and we'll bring you that buzz every month. As well as the latest on games, multimedia and productivity, we keep you bang up-to-date with the ever-changing PC hardware scene. If a new soundcard or processor is causing excitement, you'll hear it here first. We're not scared of new technology – the kit you'll buy next year is explained today.



Deputy Editor  
Owain  
Bennallack.



### PLAYER

We offer entertaining, detailed and stimulating games reviews that give you a feel for the games you want to buy. Our reviewers are experienced gamers who write with passion and authority. Also look out for behind-the-scenes reports from the hottest games studios as well as tips and in-depth solutions for hit games.



Games editor,  
Mark  
Ramshaw.  
He knows  
his stuff.



### MULTIMEDIA

There's more to entertainment than games, and that's where our multimedia section comes in. We pick out the very best of the latest CD-ROM releases and review them on the basis of how compelling their content is – we're not just impressed by fancy graphics, we're looking for real substance. Our multimedia reviews are the toughest in the business.



Graham  
Southorn. Our  
multimedia  
man.



### THE WORKS

The Works is where you come for the more serious side of computing. But we see no reason why dabbling with creativity software and producing your own graphics or music shouldn't be fun. The Works is also where you'll find our utility software, in-depth buyers guides, hardware projects and answers to our readers' problems.



Technical  
editor Mat  
Broomfield  
presides over  
The Works.

### CD REVIEW

The finest coverdisc you'll find on any PC mag – the slickest, most reliable front end, and the best exclusive game demos, productivity apps and multimedia software. Don't miss our exclusive full version of *Simply 3D*, plus our equally exclusive demo of *Simply 3D 2*.



### The PC REVIEW charter

**AUTHORITY:** All the team calls upon extensive experience in their fields.

**DETAIL:** We always check the facts – we never take a company's word for it!

**HONESTY:** We never allow corporate interests to obscure the truth.

**VALUE:** You are spending your own money – so price is always an issue.

**VARIETY:** Each month we select a mix of hardware and software.

**QUALITY:** We seek out the best and turn down dozens of products offered to us.



**Our coveted Essential accolade is only given to the very best products – the things you can't live without.**

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## An audience with...

# Patrick Buckland

**The creator of the controversial Carmageddon talks about bad driving, bad taste and his great new game.**

**S**tainless Software's *Carmageddon* (due to be published next month by SCI) is already causing controversy and outcry from MPs. This is the real wipeout, a game in which crashing and crushing is critical. We decided to speak to fast-living creator Patrick Buckland before he meets his messy fate.

**Carmageddon seems like a game on a mission. Where did the idea come from?**

The idea came from banger racing. I've raced for years, though I've given up now because I haven't got the time. I've been writing games since 1981, and a banger racing game is something that I've always wanted to do. It's only recently that the hardware has become powerful enough.

**It wasn't old age that forced you to quit?**

Ha! No. Maybe pressure from my wife and my business partner though, because of the slight possibility of getting killed.

**So does Carmageddon compare to well the real thing?**

Yes, you really feel a lot of the same emotions. Someone will swing out in front of you and you get this horribly sadistic urge to pile straight into them!

**Have you brought any of your old banger racing mates in for a go?**

One or two. There's not a big intersection between the banger racing crowd and the computer games playing crowd. I was known amongst them as the swot or the prof.

**Does the car driving model follow proper car physics?**

Oh yes. The physics was done by a guy with a PhD, and he's quite brilliant. He took all my ideas and turned them into reality.

**But how did he research the effects of a car hitting a cow?**

Well, it's mostly basic physics. If it's made right, the engine will always do the right thing. We've got a Hot Rod powerup that makes the car wheelie. There's no special code, it just happens because if the physics is correct and you give the car a lot of power, it wheelies.

**Obviously, bouncing people off bonnets was out of the question...**

Well, we did do that too, for the animation. We



"Black humour's a strange thing," ponders Buckland. "It's bizarre isn't it, how running someone over can be funny?"

videod it and then used the film as the basis for hand-touched frames. There's no motion-capture – the pedestrians in the game are all sprites, due to the limits of processing power. As sprites we easily get up to 50 on-screen at once.

**Where did the sound effects come from?**

The engine noises came from a variety of places. One was my '67 Buick. Another was a guy who happened to come and check my hard drive. He had a rally car replica, so we strapped a minidisc to the back and he drove it around the Isle of Wight at highly illegal speeds! The pedestrian squelching noises were made by my partner Bill, the design director. He refuses to admit how. We think they're some dubious bodily function.

**Does the squelching pedestrians and rest of the bloody content worry you at all?**

Obviously we've had a lot of reactions, but from our point of view it's just a game. You've got to separate a game from reality. It's *Monty Python* – it's black humour. People are shouting and screaming about it, but it's nothing compared to what you'd see in a film.

**Like Crash for instance?**

*Crash* was far more sinister, because it had a serious theme to it. *Carmageddon* doesn't, it's for fun

and that's what 99 per cent of people seeing it feel. Obviously if they've had a relative killed they may not take it as a joke, but to me that's the way to go about life. I've had friends killed on motorbikes, but I know it's different.

**What's more fun, crashing into a computer driver or one of your mates in deathmatch mode?**

It's very equal actually. Having said that, we've got seven different network games. One of the most fun ones is fox and hounds, which is like reverse tag. It becomes absolutely frantic. We've also got the first to kill seven pedestrians, a straight deathmatch one, a fight to the death one and even a checkpoint one, where you have to go through all the checkpoints. In the single player game the checkpoints don't play much of a part – you're really a big poof if you go around racing. I had a reputation on the banger track – I went through two complete seasons without once finishing a race...

**On the technical side, will Carmageddon be supporting 3D cards?**

We're supporting 3Dfx. We don't use Direct X, we a system based on BRender. Everyone hates Direct 3D and the only card anyone's asked for is 3Dfx. Hopefully the others will die out soon.

**Will there be a sequel?**

Yes, we've started the design already. We've got a huge list of ideas and my task over the next few days is to sieve through them.

**What will be the biggest difference?**

We want to use polygonal pedestrians, but if it slows down the game too much we won't. The peds can do a lot more then – frantically claw at walls trying to climb up as you bear down on them!

**Those pedestrians...**

On the subject of the pedestrians, I should add that they were really just an afterthought – we were originally going to use the *Death Race 2020* license. The game's fun to play without them. I think people will get attracted to *Carmageddon* because it's so controversial, but then they'll play it and find it's actually quite good fun. (OB)

**Full review of Carmageddon in next month's new look PC REVIEW.**





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## NEWS

## Race to Faster Chips

PC prices will fall as Intel's stranglehold wanes

## PLAYER IN BRIEF

## GREMLINS EAT DMA

Sheffield based developer Gremlin Interactive has just acquired Dundee-based DMA Design. Most famous for the genre-busting *Lemmings*, DMA Design is now becoming known as the leading UK member of Nintendo's so-called N64 Dream Team. DMA will honour existing agreements (including *Grand Theft Auto* for BMG Interactive) before beginning new titles for Gremlin next year.

## ROLEPLAYERS EAT FROGS

A new British developer, Emerald Software, is working on an RPG, *Tlon*. Rather than motivate the player through riches or women, your first ambition is escape your swampy village home, where you've been eating frogs. But then you discover you're a knight suffering amnesia. Confused? You'll have to wait until September to find out who you really are.



## A GOOD TRY?

Will Codemaster's *Jonah Lomu Rugby* succeed? Screenshots look impressive, with tries, mauls, scrums and line outs all present and commentary from rugby legends Bill McClaren and Big Bill Beaumont. Review next month.

## FLYING HIGH

Still buzzing from success with *Apache Longbow* and *Hind*, sim wizard Digital Integration is about to wheel *F-16 Fighting Falcon* out the hangar. It's promising 16 player network play with, oddly enough, capture the flag missions.

## NEW SPORTS ENGINE

Back to Gremlin, and two new Actua Sports titles, *Actua Golf* and *Actua Tennis*. *Golf* is already a big success on the consoles, but we've yet to see *Tennis*. *Actua Tennis* will be the first title to showcase Gremlin's spanking new Actua Sports 3D engine.

New chips are coming to replace the ageing Pentiums and they won't all be made by Intel. PCs based on new processors from AMD and Cyrix are about to go on sale, with Intel's Pentium II chip shipping in May. It's expected these new chips will lead to faster computing at lower prices.

The Pentium II (originally code-named Klamath) is Intel's keenly awaited Pentium Pro with MMX technology. A 233MHz version will arrive first, with 266 and 300MHz following later this year. The Pentium II should be cheaper than the Pentium Pro and faster too because of its MMX technology. The Pro is expensive because both the CPU and its secondary cache are incorporated into one chip. The Pentium II splits them, making the cache slower but reducing the fabrication costs.

In a radical departure from previous Intel chips, the Pentium II isn't a plug-in processor, it's a complete Single Edge Contact (SEC) card. This should make upgrading the Pentium II easier, since replacing a chip

nowadays often means replacing the motherboard too.

The first Pentium II equipped PCs won't go on sale until May. By that time AMD predicts its AMD-K6 will be the next-gen chip of choice for many manufacturers. "Today marks the return of competition in Windows compatible processors," says W.J. Sanders III, CEO of AMD. The AMD-K6 is about half the size of the Pentium II and, at around £450 for a 233MHz processor, it's cheaper too. Also, it might well be faster. It already beats existing Pentium Pros. If the AMD-K6 truly rivals the Pentium II, it will be the first time a clone manufacturer has beaten the Intel to market.

At 120 and 133MHz, Cyrix's new chip, the MediaGX, is hardly groundbreaking. What is exciting is its price. A 120Mhz MediaGX costs around two thirds of the price of the equivalent Pentium. Cyrix believes Intel has lost itself in the high-end PC market, and treated lower-end PCs as just a dumping ground for older chips. By making multimedia PCs more affordable for all, Cyrix believes it will create a new

market. It's already convinced Compaq, who has chosen the Cyrix chip for its new Presario 2100 family PC. The MediaGX can't compete with MMX technology, but it does offer some sound and graphics enhancements. Cyrix will ship an MMX equivalent later this year.



Integraphs systems new TD-225 is a PC to kill for. It will offer dual Pentium II processors when it goes on sale in June.





## What's going on?

For years, Intel and Microsoft have forged the PC market together. But now there are signs that Intel's dominance may under threat. Do the new chips from Cyrix and AMD represent a new age of competition, or will Intel's might ultimately crush its rivals? We'll be investigating the issues next month, with an in-depth look at the processor market and what it means for leisure computing.

"We developed the MediaGX technology from the ground up as a way of reducing the cost and complexity of high-performance, multimedia computing," says Steve Tobak, Cyrix's vice president. "The result was a significant convergence of CPU, core logic and multimedia technology in a single chip."

MediaGX stems from a general consensus that computing must become more affordable to keep growing. Possibilities include cheaper PCs, WebTVs and Network computers. All will need cheaper chips, since the processor currently represents up to half the cost of a PC. Carl Stork, general manager for Windows at Microsoft says: "PCs have grown popular to a growing number of consumers, and there are two key challenges to maintaining this growth: improving ease of use and making PCs more affordable. This new

generation of processor technology, such as the MediaGX processor, will make PCs more affordable and thereby make them more accessible."

Intel is expected to respond by cutting prices later this year. Last year Intel's earnings rose 45 per cent to over \$5 billion. Its margins on chips rose to over 50 per cent. (OB)

## FutureNet reborn

*The world's best Web  
site just got better*

Now's the time to check out the world's most exciting web site, if you haven't done so already. FutureNet, the leading web site from the makers of PC REVIEW, has just been overhauled and re-launched.

The site ties in with Future Publishing's range of specialist consumer magazines, including sections devoted to gaming, consumer technology, and computing. Other subjects covered range from science-fiction and cycling to football and films.

Make sure you don't miss the PCNet pages, where you'll find the latest news, reviews, features and shareware from all Future's PC magazines. It's designed to be an essential point of contact for anyone interested in expanding their PC, with tutorials for the latest programs and contacts for other PC users.

**FutureNet**

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<http://www.futurenet.com>

The Pentium II and the AMD-K6 are racing to capture the market for high-end processors.

## Your first look at: PLANE CRAZY

Here's the latest title from Scottish developer Inner Workings. It's a flight sim for the PC, but not the PC as we know it. Microsoft is currently working on a new standard called the PublicPC Initiative. Essentially, it's an attempt to put a high-spec PC in a box and so create a PC for amusement arcades. Due for release later this year, arcade success for *Plane Crazy* could well mean a PC version. We'll be visiting Inner Workings soon to find out more about its upcoming titles, and to discover more about the PublicPC.



## PREMIER LEAGUE KICKS OFF

*Anglia Multimedia is on the ball*

Football fans will be able to walk around virtual recreations of their favourite soccer stadia with *Premier League*, a CD-ROM due out in August.

Launched just before the season starts, *Premier League* will enable you keep up with your team's progress by working in tandem with an official Web site. Updates of all upcoming fixtures and results are available through an Internet link to the site. "The information will be



You can buy Shearer's Premier League goals for just £29.99 next season.

continuously updated, so if a match is rained off we'll put up the replacement fixture straight away," says Adrian Weston of Anglia Multimedia.

For vital League clinchers, you can check out how your side has performed in match-ups over the past five years. This historical section will also contain video footage and information on individual players, and again it will be kept current via the Web site. *Premier League* will cost £29.99.

## VIRUS CHECKING CHEATS?

*Anti-virus manufacturer McAfee accuses Dr Solomon's of foul play*

Competition between virus scanning software companies has stepped up a gear, with McAfee accusing rival developer Dr Solomon's of misleading the public.

McAfee's researchers claim that when Dr Solomon's *Anti-Virus Toolkit* identifies 11 unique viruses in a row, the software switches to a heuristic scanning mode which is capable of finding previously unknown infections.

That way, it finds more viruses in independent tests, such as magazine reviews, than it would in normal use. "As a result,

customers of Dr Solomon's are not as protected as Solomon would have them believe," says McAfee marketing manager Caroline Kuipers.

However, it's not a view shared by independent testers such as the National Computer Security Association. It said that while Dr Solomon's heuristics function could cause misleading results in simple tests, it can be expected to detect all viruses that a user is likely to encounter. "The user can turn the heuristic function on for themselves at any time," says Graham Cluley, Senior Technology Consultant for Dr Solomon's.

See what we thought of Dr Solomon's *Anti-Virus Toolkit* on page 87.

**McAfee**

McAfee's view that home users will suffer isn't shared by the NCSA.

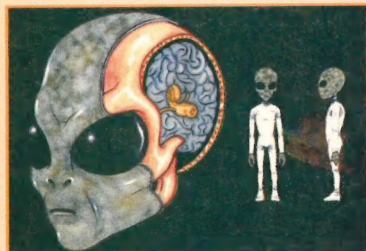




## MULTIMEDIA IN BRIEF

### ALIEN INVASION

Fans of the *X-Files* will get the chance to do some alien hunting themselves when Anglia Multimedia's *UFOpaedia* is released in September. For £29.99, you get a database of 20,000 sightings and video footage of flying saucers. More macabre photos show the results of alien mutilation of humans and cattle, and there's a link to a Web site that's updated every month.



Fancy yourself as Mulder or Scully? Go searching for aliens with Anglia Multimedia's *UFOpaedia*.

### WORLD BOOK ENCYCLOPEDIA

Homework should be a breeze, now that the 1997 *World Book Multimedia Encyclopedia* is available for £49.99. Partly developed in the UK, the *Encyclopaedia* includes photographs, videos and virtual reality simulations, plus 17,500 articles. An Internet link provides monthly updates and access to 3,000 articles from the *World Book* archives, dating back to 1922.

### SPEAK EASY

*Easy Language Conversational Skills* is a language disc from IMSI that promises to teach you in-depth grammar, vocabulary, pronunciation and reading lessons in Spanish, French, English and German. Each language contains 90 lessons, plus a record and playback feature for practising speaking. It's suitable for anyone who requires comprehensive tuition and costs £49.99.

### CONNECTIONS

The scientific adventure *Connections* from BMG includes surreal landscapes through which you travel in a quest to save the history of time. Priced £29.99, it's based on James Burke's television programme, which is due to be shown on the Discovery Channel on 11 May. Mr Burke also crops up on *Mystery Connections*, a game on the Web that's located at <http://tlc.discovery.com>

### ROUTE PLANNER

Two new discs from AND Publishing help you plan the quickest journey by car. *AND Route 97* for the UK & Ireland costs £24.99, while 27 countries are covered in the £29.99 European edition, which covers all major ferry routes. You can find places in the UK edition either by entering their names or a postcode.

# GLASSY EYED

New Looking Glass titles simply dazzle

Looking Glass's *Flight Unlimited* and *Terra Nova* redefined PC graphics, with lavish detail and impressive speed respectively. Now it's working on two new titles: *The Dark Project* and *Flight Unlimited II*, which prove its still at the forefront of PC graphics.

Still in development, the *Dark Project* is slated for release this Christmas. At first glance, it's a pretty *Quake* clone. Yet the team's stated mission is to outdo the atmosphere of *Ultima Underworld* and *System Shock*, two of Looking Glass' greatest successes. All the developers are avid gamers as well as traditional role-players. By focussing on the RPG side of things, *Looking Glass*

hopes *The Dark Project* will prove as different to *Quake* as *System Shock* was to *Doom*.

Rather than *Quake*'s mish-mash story, *The Dark Project* is set in an evocative hybrid medieval world. Magic rubs shoulders with machines in eerie environments built from rugged slanted stones that cast fierce shadows across the rooms. As a thief, your character will have to learn to use these shadows effectively. With firepower limited to knives, swords and bows, the emphasis will be on stealth and brain-power. Sometimes you might need to sneak past enemies, other times you'll stab them in the back.



**The Dark Project** promises 'Act-React' which gives objects real-world properties – doors can be burnt down and metal will clank.



**Flight Unlimited II** will be the first flight-sim detailed enough for navigation using the Visual Flight Rules (that is, by looking out the window).

In contrast, as its working title suggests, *Flight Unlimited II* is a very familiar story. But the graphics look even more incredible than its breath-taking predecessor, with over 8,500 square miles of the popular San Francisco area mapped out for your enjoyment. In fact, every building over ten stories high has been rendered in glorious and full 3D. You can probably even find your favourite movie scenes if you fly low enough! No release dates have been confirmed for either title.

## ONE LAST GO...

Discover the heritage of computer gaming

Was *Space Invaders* scarier than *Quake*? Was *Pong* more realistic than *Microsoft Soccer*? To find out, pop down to Re-Play at the Museum of the Moving Image. As well as the complete history of videogaming, this unique exhibition enables you to try many of the all-time classic games.

Re-Play demonstrates games past and present through video displays as well as the consoles and computers themselves. In its 30 year history, gaming has often been branded dangerous or even subversive. The exhibition investigates, unearthing mountains of trivia on the way. For instance, though the first games were run secretly on mainframe computers in the 60s, by the late 70s video gaming was a booming business. So much so that on release, *Space Invaders* quickly caused a Japan-wide shortage of 100 Yen coins.

Incidentally, the British Film Institute is still collecting old games for its computer games archive (see PC REVIEW Issue 64) and has asked Re-Play for help. If you've got an old and much-loved game to bequeath the nation, contact: Tony Hetherington at the BFI, 21 Stephen Street, London, W1P 2LN.

## 3D DOES IT

More new graphics accelerators are on the way

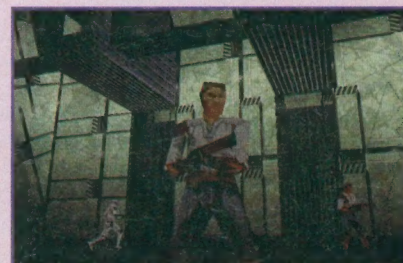
The relentless advance of 3D technologies shows no sign of abating. Last month alone saw VideoLogic, ATI and 3DLabs all announce new or upgraded 3D chipsets.

Perhaps the most significant is VideoLogic's new PowerVR PCX2. It replaces NEC's PCX1 chip and claims to deliver 50 per cent better performance. In addition, the new chip performs bilinear filtering, leading to much smoother polygons. Lack of filtering in the previous PowerVR boards has seen them suffer in comparison to those based around the 3Dfx chipset, its main rival.

Meanwhile, ATI has upgraded its Rage II chip. Over a million Rage II chips have been sold, many as part of ATI's own 3D Xpression board. As well as increasing performance by over 30 percent compared to the current Rage II chip, Rage II + DVD supports MPEG-2 playback. This means you can play DVD movies on your PC without additional MPEG-2 decoding hardware.

Finally, 3DLabs has announced the GLINT Gamma. Aimed at the professional 3D rendering market, it's the first graphics chip to use Intel's Accelerated Graphics Port (AGP). This enables the chip to communicate directly to the CPU, enabling a maximum throughput of over 3.3 meshed polygons per second.

No prices have yet been confirmed for any of the new chips, but the PowerVR and Rage II upgrades are expected to simply replace chips in existing product lines.



LucasArt's forthcoming *Jedi Knight* has already pledged to make good use of VideoLogic's PowerVR technology.



# Beat the music blues

Audio servers deliver sound to your PC

**T**he days of making traipsing to the record shop only to find they've sold out of the Chemical Brothers are over. Two competing systems for delivering music over the Internet seem ready, at last, to rival their conventional methods of distribution.

MusicPlayer from Liquid Audio uses Dolby Laboratories' digital AC3 compression technique to transmit CD-quality sound over the Internet. Music fans are already using it to sample new releases. The recordings are broadcast from the Liquid Audio server, which sets up a channel to send a continuous stream of music. A wide variety of major label and unsigned bands have samples at the Internet Underground Music Archive (IUMA) and major artists whose music featured on Liquid Audio's own site include jazz giant George Benson and former Van Halen singer Sammy Hagar. The Chemical Brothers new album, *Dig Your Own Hole*, was available for free on the Liquid Audio Web site ([www.liquidaudio.com](http://www.liquidaudio.com)) before it appeared in the shops.

Listening to music across the Net isn't new. But not only can you preview tracks in streaming mode with MusicPlayer, you can also download CD-quality encoded songs to a hard disk or even burn your own discs using a CD writer. You'll still get the artwork because the cover, lyrics and sleeve notes are delivered too.

Whether or not Liquid Audio takes off probably depends less on the technology involved than on the wheeling and dealing of its rival, Cerberus Central, whose Virtual Pressing Plant audio server uses MPEG compression rather than Dolby. Cerberus has agreed a deal with publishing giant EMI that will clear the rights for 1.5 million songs, which is estimated to be over 20 per cent of the world's music. That still leaves master rights to the music, which reside with the record companies. But the managing director of Cerberus Central Limited, Ricky



Listen to new, unsigned bands using Liquid Audio's MusicPlayer at the Internet Underground Music Archive.

Adar, says all the major labels have shown interest in buying their own Virtual Pressing Plant.

"What has always been the stumbling block for on-line distribution is the publishing side. There's obviously a desire from the record labels to do it because they can sell more units. They regard it as a market that will parallel CD sales and may eventually overtake them."

Record companies are attracted to Virtual Pressing Plant because of its in-built protection against music piracy, explains Adar. "When you log onto our system you give us our credit card details and our server makes you a player that's unique to you. When you download a song it is encoded so only your player will play that song at that time."

One of the first companies to invest in a Virtual Pressing Plant will be EMI Records, whose catalogue includes bands like the Rolling Stones and the Beatles. Adar believes recordings from these bands could be available to purchase online within a year. But there's still plenty of music available in the meantime. Music by dance outfits and independents can already be bought by credit card from the Cerberus *Digital Jukebox*. For example, a single by the Charlatans costs 60p. It takes about 10 minutes to download using a standard modem.

## Talking in the library

**I**n future it won't just be music you'll be able to download from the Internet.

Online catalogues run by libraries will also deliver archive radio broadcasts, parliamentary speeches, and spoken history lessons.

The recordings are stored by London's National Sound Archive (NSA), whose collection grows by four times for every minute of the day. Currently the sounds are digitised and recorded on CDs, preserving them for 50 years without the slightest degradation in sound quality. In fact, CDs can last up to 400 million years if they're stored carefully (a pine CD rack from Habitat will not suffice). Older recordings on wax cylinders

THE BRITISH LIBRARY  
NATIONAL SOUND ARCHIVE



Libraries will be noisy places, thanks to the National Sound Archive's pioneering work on Internet sound delivery.

are in the process of being transferred before they disintegrate.

You can see what's available by using the catalogue, called Cadensa, which itself is a whopping 24Gb in size. The NSA hopes eventually to connect Cadensa to the archive itself. In an EU-funded experiment, the catalogues in Britain, Denmark and Italy have already been connected to racks of CDs via dedicated ISDN lines.

The one sticking block in all this is likely to be a legal one. Under the Copyright Act of 1911, a copy of every book and journal published must be deposited with the British library. Record companies wouldn't do the same without being able to recoup revenue.

## BOOKMARK

April Fool's day might have passed, but you can still wind people up on the Web.

### THE CORPORATION

A spoof on the mega-corporations that seem to own everything these days, The Corporation is awash with bad taste jokes. For example, the Tobacco Industry Lobby for Youth Interests are "looking out for your kids."

<http://www.thecorporation.com/index.html>

### THE KLF MAINPAGE

The full story on Bill Drummond and Jimmy Cauty, whose escapades include a thrash metal rendition of 3AM *Eternal* at the Brit Awards, subverting the Turner prize, and burning a million pounds.

<http://www.lysator.liu.se/~johol/KLF/index.html>

### THE ONION

Similar to Chris Morris's *Brass Eye* show on TV but not nearly so funny, The Onion is a spoof American newspaper on the Web.

<http://www.theonion.com/>

### ADBUSTERS

These guys started by spoofing well-known adverts and now they're targeting their satirical attentions on big business on the Internet. Their top stunts are on the Web... or are they?

<http://www.adbusters.org>

### THE OFFICIAL VICTOR LEWIS-SMITH HOMEPAGE

Victor Lewis-Smith is the dreadlock-sporting humorist whose prank phone calls are roll-over-and-laugh-on-the-floor funny, and sometimes quite shocking. Hear them here and order their new album on-line.

<http://www.lewis-smith.com>

## Directory

Watch for the new look .net Directory - out soon.



## THE WORKS IN BRIEF

### DREAMY VISION

Panasonic's new PanaSync Pro 7GX might cost more than your PC, but it offers a higher horizontal scanning rate than any other 21-inch monitor, at 115KHz. This translates to a rock-solid vertical refresh rate of 90KHz at the top resolution of 1600x1200. The recommended retail price is an incredible £2175.



### SCAN AND PRINT

Alps has just released a near-photo-realistic colour printer/scanner. The MD-4000 boats 600x600 dpi colour printing and 1200x600 dpi monochrome printing. The single-pass 24-bit colour TWIN scanner scans at 600 dpi. Like the previous MD-2010, the new printer features ALPS's patented *Micro Dry Colour Inks*, which can even be applied to T-shirts.

### LOADSA SOFTWARE

If you bought your PC at a rock bottom price, you might have missed out on the customary software bundle. If so, look at Microsoft's *Home Essentials 97*. It packs versions of all Microsoft's popular office titles including *Word 97*, *Works 4.0*, *Money 97*, *Encarta 97* and *Explorer*. It costs £99.

### TOUGH NUTS

McAfee has just been granted permission by the US government to export its 56-bit encryption technology. 56-bit encryption is 65,000 times more powerful than 40-bit technology, currently the strongest that can be exported with special permission. You'll find 56-bit versions of McAfee's *NetCrypto*, *PCCrypto* and *Desktop Security Suite* at [www.mcafee.com](http://www.mcafee.com).

### SCANNER BUNDLE

Buy a UMAC Vista S-12 Scanner from IMC distribution and it'll throw a copy of Macromedia's *Freehand Graphic Studio* into the bargain. The £325 colour scanner offers a maximum scanning resolution of 600x1200 dpi in a single-pass.

### DESKTOP PHOTOLAB

AZTECH might revolutionise digital photography with its new DPD-200 desktop photo developer. The £200 unit produces high quality photographic prints directly from the PC. You can edit your images with any image editing software, then output a dry, waterproof and smudge-free image within three minutes.

# More war on the TV

PC industry proposes new Digital TV standard

The computer industry has locked horns with television manufacturers over the format of Digital Television (DTV) transmissions. As well as billions of pounds, the opportunity to create new types of TV programmes is at stake.

As well better images, and the ability to pack five channels into one, DTV enables extra digital information to be transmitted alongside TV programmes. Compaq, Intel and Microsoft have proposed one standard for DTV (one particularly open to computing technology) while TV manufacturers have proposed another. The US Federal Communications Commission (FCC) has decided the market should say which standard prevails.

Computer manufacturers want to combine DTV and the Internet to create new types of interactive programming, through so-called Intelligent Receivers. "With the advent of the Internet, expectations

of the audience are changing quickly," says Craig Mundie, vice president of the consumer platforms group at Microsoft. "Working with the television industry, we have the opportunity to establish digital TV as the platform for a new wave of content that appeals to the viewer both for high picture quality and for new ways of engaging in the program."

As part of this



Television may amount to more than bigger screens and matt black styling

strategy, Microsoft recently bought WebTV, a Californian maker of TV-top Internet browsers, for almost half a million dollars. Microsoft hopes WebTV will provide a stepping stone to interactive TV. Schedules, gossip, sports scores and other titbits could be among initial DTV broadcasts, were the PC industries standard to be adopted. Games and online chat could soon follow, all in an on-screen window.

The PC already has the hardware needed to display DTV signals - it just requires a receiver. The computing industry argues that early adoption by PC owners would help the DTV market to grow more quickly, to everyone's benefit.

Microsoft expects all PCs to be shipped with DTV receivers by the year 2000. Terrestrial trials will begin towards the end of this year. DTV is expected to replace analogue transmissions world-wide within a decade.

## SWEET FILTER SUITE

*Eye Candy 3.0 makes special effects easy*

Fast, impressive effects at the press of a button are promised by *Eye Candy 3.0* from Alien Skin Software.

Distributed in the UK by Principal Software, *Eye Candy 3.0* is a set of 21 *Photoshop*-compatible filters. Effects can be applied to any portion of your selected image in just seconds while zoomable and resizable previews and thumbnail navigation makes the software easy to use.

The professional standard filters it offers include *Antimatter*, *Chrome*, *Fire*, *Fur*, *Jiggle* and *Water Drops*. Any one of them could create catchy logos for a surf and skatewear company. It costs £125.



EC3.0's preview mode enables you to see slider bar tweaks in just a few seconds.



Create your own chiselled logs with *Eye Candy 3.0's* Carve filter.

## Star Trekkin' again

A new generation bodily go

Captains Kirk and Picard of the USS Enterprise met for the first time in *Star Trek: Generations*, the seventh feature film in the long-running series of movies.

Now you can revisit the Nexus and encounter the evil Dr Soran in Microprose's new PC game of the film. We have 10 copies of the video cassette to give away in a prize draw - simply send a postcard marked *Generations* to the usual address. Normal competition rules apply. And don't forget to read our review of the game on page 41.

Win a copy of *Generations* in our prize draw.



## THE CHARTS

### Top 10 selling PC CD-ROMs

- 1 (-) Theme Hospital  
**Bullfrog**
- 2 (-) MDK  
**Interplay**
- 3 (4) Champ Manager 2  
**Eidos**
- 4 (1) C&C: Red Alert  
**Virgin**
- 5 (3) FIFA 97  
**Electronic Arts**
- 6 (2) Tomb Raider  
**Eidos**
- 7 (-) Duke Nukem 3D  
**Eidos**
- 8 (-) Rally Champ  
**Europress**
- 9 (6) Flight Sim 6.0  
**Microsoft**
- 10 (9) Formula 1 Grand Prix 2  
**Microprose**





## Thrust into action

A world of online gaming for the price of a local call

Now you can play the latest PC games on-line against human opponents without paying excessive phone charges, thanks to a new Internet service.

Subscribers to Thrust World pay a flat fee of £17.99 per month to play games over the Internet, with phone calls charged at a local rate throughout the country. Thrust World also offers full Internet access, including email, news-groups, and Web access through UK service provider SAQ. You can also dial into Thrust World from your existing service provider, although the same charge applies and it's slower than dialling direct.

Billing itself as a service for serious games players, Thrust World supports titles like *Quake*, *Duke Nukem 3D*, and *Red Alert*, plus new releases like *Diablo*. If your favourite game isn't supported, the company says it will provide it as soon as possible. Gamers compete one-on-one against other members, or enter league competitions to play for monthly prizes.

The rankings are published on dedicated Web sites for each game, along with tactics, deathmatch levels, and the latest patches. There's even a



Join Thrust World and play *Diablo*, *Red Alert* and *Quake* over the Internet.

voting system where members decide democratically on the patch to be run on a particular day.

To play you need a PC running Windows 95 and at least a 28,800Kbps modem. You'll also have to buy the games themselves, although new members receive a CD containing shareware versions of the most recent and popular network titles. Be sure to read our main feature next month. It's set to be the definitive guide to on online gaming and other entertainment.

## COMPETITION RESULTS

The answer to our March competition question - 'Who directed the City of the Lost Children?' - was Marc Caro and Jean-Pierre Jeunet. The prize was a Game GearPad Pro, to be sent to the 20 readers whose names came first out of the hat. And the winners are:

Robert Samuel, Reading; Paul

Tolley, Wolverhampton; AR

McTernan, Sunderland; Chris

Buckley, Oldham; Mike

Wallace, North Somerset;

Eddie Smith, Gloucester; Keith

Ross, Iwerness; Chris Gledhill,

East Yorkshire; Karen Poole,

Kent; S Drew, West Sussex;

Elizabeth Horgan, Oxon; Karl

Borowy, Bolton; David Wright,

Cheshire; Cameron Sharples,

Bury; Carole McAlinsh, Perth;

S Vice, Leicester; Claire

Judge, Dublin; NJ Westley,

West Midlands; Justin Morgan,

Mid Glamorgan; Alison

Lawrence, Somerset

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Cerberus Central Ltd	0171 636 1536
Codemasters	01926 814132
Connections	01373 455 999
Digital Integration	01276 684959
Dr Solomon's	01296 318700
Emerald Software	0171 3867822
IMC	01344 872829
IMSI	0181 581 2108
Inner Workings	0141 552 4451
Looking Glass	www.lglass.com
McAfee	01344 304730
Microsoft	0118 927001
MOMI	0171 8151331
NSA	0171 412 7430
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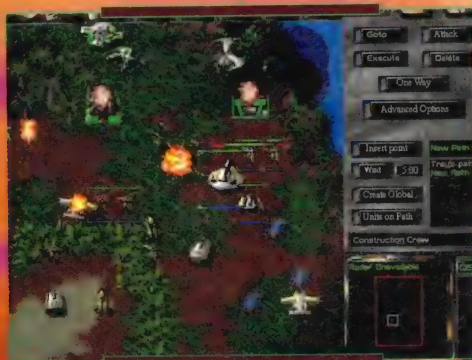
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create your own maps and missions with the advanced construction kit. create multiplayer alliances on the internet by sharing resources, units and intelligence. other features include gigantic playing maps and never-before-seen units.

# DARK REIGN

## THE FUTURE OF WAR™

coming this spring



ACTIVISION



see the future at [www.activision.com](http://www.activision.com)

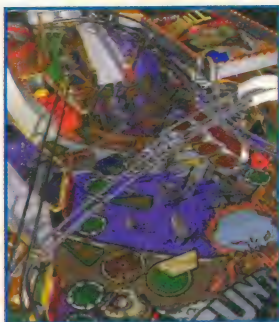
Activision is a registered trademark and Dark Reign: The Future of War is a trademark of Activision, Inc. © 1999 Activision, Inc. All rights reserved. All other trademarks and trade names are the properties of their respective owners.





### DIY PINBALL

If the exploits of NMS have inspired you to create your own table, take heart; you just need Issue 60 of PC REVIEW. That issue's coverdisc comes with a demo of Pinball Construction Kit from 21st Century Entertainment. While you won't be able to build 3D tables, you are able to try out ramp, flipper and lighting combinations in stylish 2D. You'll even find a 16-page booklet devoted to the finer points of pinball design – thrown in for free! Call 01858 468888 to order.



"We're trying to appeal to the purists," says Steve Beverley. "If we can please them then everybody should be happy."



To play 2 Up Tilt! you'll need enormous ten pence pieces, which you can only get in the more backwards peripheries of our fair land.



The designers say their two-player table Mythomaniac means 2 Up Tilt!'s ball engine is almost like a real-time snooker simulator.

### PINBALL WIZARDS

Perhaps the best feature of the two-player table Mythomaniac is the spells you can inflict on your opponent. To do this, you must first earn the spells, just as you'd usually try to pick up extra points. Some of the most include Cloak of Evil, which makes your opponent's ball semi-transparent, Curse of Verticus which stops the ball travelling up ramps and the Revenge of the Gods that turns your enemy's ball into rubber.

## Work In Progress: 2 up tilt!

# BATTLING

**NMS software is working on a two-player sequel to its pinball game Tilt! Could this mean war?**

Pinball games are like Dire Straits albums – we've all played them and they sell millions, yet few people will admit to owning one. But NMS Software looks set to change this with its latest title, 2 Up Tilt! The sequel to 1996's multi-format hit Tilt!, 2 Up Tilt! includes a two player table, which might just coax the wizards out to lock flippers head-to-head.

"We wouldn't be doing another pinball game unless we thought we had something new," says Jon Harrison, one half of the 2 Up Tilt! design team. "This is something that no-

one else has approached in the arcade – two people playing on the same table in a battle-mode type of pinball."

The two-player table – Mythomaniac – could prove the unique selling point for 2 Up Tilt! Historically, challenging other pinball players has involved muscling for a go, spilling pints and claiming that your mate's shots were pure fluke. 2 Up Tilt! will enable you to finally demonstrate that you're far better than your friends.

Like all classic two-player games, it mixes offence and defence. Mythomaniac is

based around two distinct sub-tables joined by a central ramp. Each player has his own flippers and ball. The idea is to score points on your side, whilst doing your utmost to mess up your opponent's game. You do this either by earning spells that wreck his ball's dynamics, or by firing your ball into his playfield to disrupt his game. Now he has two balls to keep in play – one of which steadily wrecks havoc. The trick is to neutralise the rogue ball's potency via a magic temple, then to play both balls to your advantage.

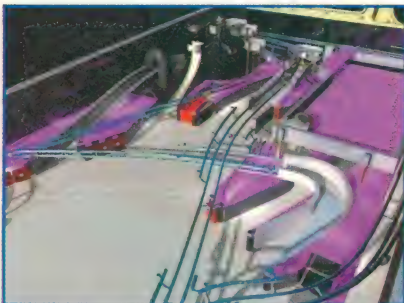
"It's a very strategic game, with lots of moves built into it," says Harrison. "As long as you're both fairly skilled you can just keep blocking each other. It's almost like chess."

There's no real precedent for two-player pinball, except for an early 70s table by Gottlieb called AG Football. "It had flippers at either end, and you tried to score goals by getting the ball down the middle of the flippers," explains Harrison. "But I don't think the Yanks really got the hang of football – it was divided into quarters!"

While the two player table is a great innovation, NMS' core philosophy has been to create the most realistic pinball table yet, something 2 Up Tilt!'s co-creator, Steve



NMS began life as a conversion house for the 8-bit console market. It now employs nearly 50 staff in its West Midlands offices.



Without the decals, bitmaps and texture mapping, the core structure of the Stuntmania table is plain to see.



Unlike the rather static Tilt!, many of 2 Up Tilt!'s features animate during play. This adds even more to the game's good looks.





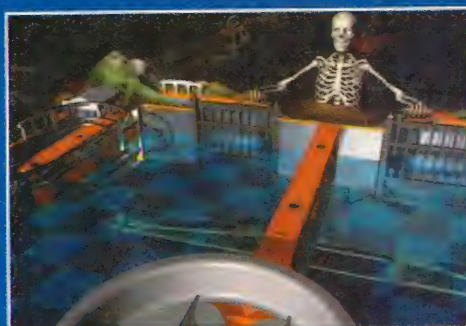
## Table Turning

"The first thing we do is sketch out on paper the table layout," says Steve Beverley, explaining how NMS created *2 Up Tilt!*'s Unexplained table. "We thought it would be nice to get an X in the back there, from the *X-Files* obviously. That's how you start – you get some seed of an idea and you sketch out how you can work it into the table. From there evolves your rough plan."

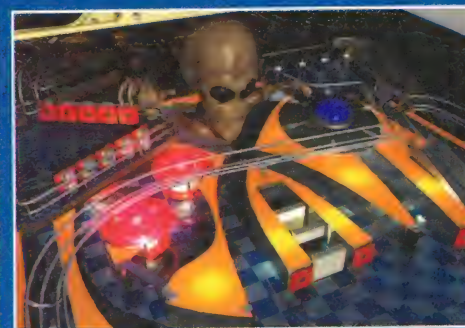
Once the table had been sketched on paper, the basic structure can be created on the workstations. "The next step is to move to the Silicon Graphics kit and extrude the idea, which doesn't take too long to do," explains Beverley.



Here's the Mythomaniac table in wireframe form. The skeleton looks even more barren without his fleshless bones...



After rendering, the Mythomaniac table is looking much healthier. This isn't an in-game shot, but it shows the detail in the table's design.



Apparently, most tables are based around a seed idea, like this X (from the *X-Files*) in *The Unexplained*.

Beverley, is keen to stress: "Everything you're seeing is taken from a real pinball table. We've taken a ruler to it and gone for maximum authenticity, right down to the filaments of lightbulbs and the heads of the screws."

The result is three superbly rendered 3D tables – Stuntmania, *The Unexplained* and of course

Mythomaniac – that bristle with lights, decals, ramps and runners, as well as lively 50s artwork. "The irony is that

you only really notice these details if they're not there," explains Beverley. "When you go for maximum photo-realism, you take it for granted that what you're looking at is a real table, so when something hasn't been implemented – like reflections on the ball – it leaps right out."

The original *Tilt!* was hamstrung by time-pressure, which meant NMS was unable to create the game it wanted to make. The 3D scrolling view was particularly time consuming. As Beverley says: "The 3D mode looked great but it was a dog to play, and most of our time was spent doing the graphics for that. Doing one table gives us a lot of time to get the details right – when you're doing 60-odd frames for a scrolling 3D table there's no time."

Aside from the scrolling table, some criticised *Tilt!* for its glitchy ball dynamics, particularly apparent when the ball encountered a ramp. "All the ball dynamics have been rewritten," says Harrison. "Tilt!'s ramps were a bit like hoovers – the ball would get to the bottom and was just sucked up." Beverley agrees: "Now there's a real influence from the table – it's much more of a physicist's engine than it ever was before. Every surface has a characteristic, so the

programmer can mark a certain section as being rubber and another as metal."

Freed from the tyranny of the scrolling table, the team devoted their time to table design. *2 Up Tilt!* even includes elements unavailable in real tables, like hidden alleyways and power-flippers that double the flipper power. "We haven't gone too far,"

stresses Beverley. "We don't want to go into the realms of crazy pinball. There's nothing to stop you

having something morphing into something else, or disappearing and then reappearing, but it soon freaks people out." Harrison agrees: "You've got to remember that people who buy pinball games like pinball."

As members of the Pinball Owners club, NMS has scoured history's tables for ideas and mistakes.

Both designers are real pinball fans, and indeed it's this that has driven them to try to create the best pinball game ever. "I don't want to run down the opposition," says Beverley, "But I always think that from a rules point of view, they've not been produced by real fans."

The dedication to the rules – pinball terminology for the myriad sub-games and hidden modes that permeate a great table – is the other big hope for *2 Up Tilt!*:

"Hopefully, people will feel a little bit daunted when they pull back the plunger because it looks so complex," says Beverley. "But after only five balls they'll get into it and find it's not as complex as it looks, that it's just like a real pinball table." (OB)



Stuntmania is perhaps the most attractive table. It's based around stunt games, target practice sessions and jump ramps.

### WHEN CAN I GET IT?

*2 Up Tilt!* should hit the stores in May. We'll be reviewing the game in next month's issue.

### CD REVIEW

Check out the fully playable demo of *2 Up Tilt!* on this month's CD REVIEW.





### VARIATION ON A THEME

*Absolute Bedlam* promises a much more varied gaming experience than the original, according to Jonathon Baddeley. Rather than just one person creating the levels, teamwork's been the order of the day. "It's been more of a group design this time, with as many ideas as we can get shoved in from me, Shaun Rose our head plonker and the two artists Kev and Paul," he says. Head plonker? "Yeah, he plonks things straight into the levels. The name's just stuck."

# CRAZED

Work in progress: **Absolute Bedlam**

Your last chance to enjoy *Bedlam*. "We've drawn the line at this, we've reached the limits of the engine," says programmer Baddeley.

**Mirage is back with a sequel to its reckless blaster *Bedlam*. A desire to cause chaos with weapons might not mean you're crazy...**

Once, if you were loopy, you were seen as God's prophet. This generous viewpoint shifted in the 13th Century, with the opening of the Hospital of St Mary of Bethlehem, England's first lunatic asylum. By the 18th century, insanity was a dreaded disease and the hospital a Victorian tourist attraction. It was nicknamed *Bedlam*, which soon became a byword for all kinds of lunacy.

These days the asylum has given way to the madness of *Care in the Community*. Equally, *Mirage's Technologies Bedlam* has become *Absolute Bedlam*. Just as in the original the emphasis is on mayhem and assault. Lead programmer Jonathan Baddeley was glad to revisit *Bedlam*. "We've made the *Bedlam* we wanted to make in the first place," he says. "We also took the criticisms of the original *Bedlam* as we wanted fix those as well."

Awarded a respectable seven in Issue 60, we grieved that *Bedlam* boasted great ideas, but no big picture. This time, while the central game's the same (you control a three

vehicle team rampaging through massive isometric levels) the design is far more focused. "A lot of the things were done in retrospect last time – for instance I was given the completed missions and I had to write the mission briefings around them. This time we planned everything out," says Baddeley.

The mission structure has also been reworked and espionage missions, in which you recover secrets, join the rescue and destroy missions. "It's a real mix up of mission types, all intermingled," says Baddeley. "within each campaign you have different areas that you play though. One's in a military base, another in a docklands."

One potential problem, the fixed isometric viewpoint, remains. Baddeley concedes that enemies can sometimes be obscured, but argues it's the price of frenetic gameplay: "We could have had, say, two fixed viewpoints, but we would have had to hold two viewpoints in memory and it's a very memory intensive game as it is." Of

course, compared to a dedicated console, vanilla PCs have always struggled to create fast paced arcade games. But Baddeley denies this is an indication of people's taste. "PC gamers were once either strategy players or else they were simulation players. Now the mould's been broken, it's more of a major games system. You can get a playable PC for under a thousand pounds and it's

pretty much holding its own against the consoles."

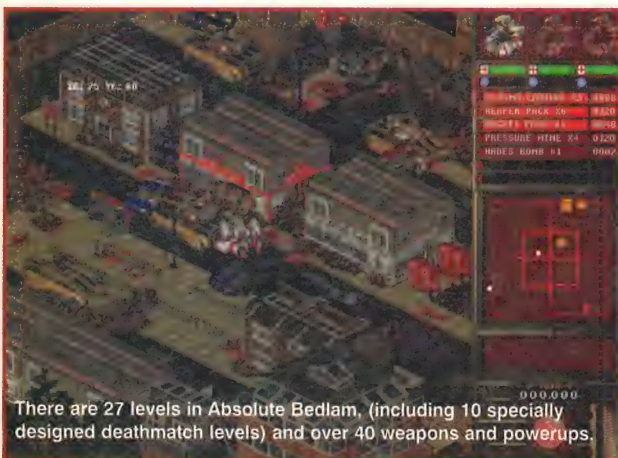
Probably the single biggest opportunity was the chance to add a deathmatch mode. Dropped from *Bedlam* due to lack of time, *Bedlam's* programmer Paul Johnson has this time worked solely on multi-player support, with another programmer hired to write the network drivers.

The result is perhaps the most frantic action yet. "We've got competitive and joint games," says Baddeley. "You can have up to eight players on both, which will probably make the joint games a bit easy."

Maybe. But eight heavily armed players will mean *Absolute Bedlam* certainly lives up to its name. (OB)

### GO REVIEW

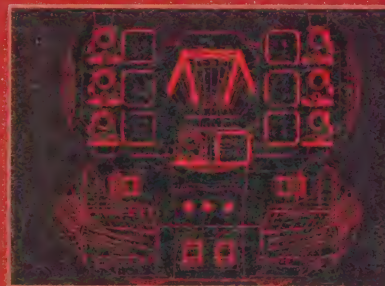
Don't miss the excellent three-level DOS demo of *Absolute Bedlam* on our coverdisc. It's exclusive to PC REVIEW!



There are 27 levels in *Absolute Bedlam*, (including 10 specially designed deathmatch levels) and over 40 weapons and powerups.



An isometric viewpoint demands clever design.



Here's the redprints of your RATT (Rapid Assault Tank mark Two). Not all the graphics in *Absolute Bedlam* are freshly rendered.





# The Settlers II

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The troops and vehicles are hemmed in by rough, rocky ground.



## Work in progress: Dark Reign

Snow, sand and savannah. Just three of the many terrain types to be found in *Dark Reign*.



# BATTLE READY

Here's your first in-depth look at the upcoming realtime wargame from Activision.

### MULTIPLAYER

*Dark Reign* will support up to eight players over a network or via modem, and its multiplayer mode has some very interesting features. Players will be able to swap units and share both resources and intelligence. Furthermore, in some cases units will be under shared control between players. Sounds innovative, but potentially troublesome.

Activision has declared war on C&C: *Red Alert*. In fact, the company believes it can blast the game right off the strategy wargaming battlefield.

So what's brought out the commando-esque bravado in this veteran American games publisher? Well, Activision's got a game in its arsenal by the name of *Dark Reign: The Future of War* which, on first inspection, looks like it might turn out to be a *Red Alert* beater.

Leading the troops on Activision's development team is Ron Millar, who, having worked for Blizzard on the *Warcraft* games, has an impressive service record. Millar, working as a consultant for Activision, is adamant that several elements of *Dark Reign*'s design will see it bury the

competition... in an unmarked grave.

"Nobody – and I mean nobody – has approached the artificial intelligence problem in these games and taken the bull by the horns, that is until now," says Millar. "The *Dark Reign* AI team is headed up by Dr Ian Davis, or as we call him 'Dr Death'. He comes from a background in robotics and specialises in AI. He's formulated some very interesting and useful features that will be heavily used in the *Dark Reign* engine."

Like other realtime wargames, *Dark Reign*'s AI will build units, defend its structures, manage its own economies and respond to the actions of the player. This, according to Millar, is where the other wargames out there tend to stop. However *Dark Reign* is to include two special new AI



As we go to press, *Dark Reign* is being given a graphical facelift. Don't expect it to look exactly as it does here!



Ron Millar: Confident that *Dark Reign* will supersede *Red Alert* and *Warcraft 2*

### Designer wargaming



The first job when making a mission is to define the terrain and determine the geography of the battlefield.



Then you have to place units and set the objectives players must meet in order to win.



Finally it's down to the nitty gritty of setting paths for the computer controlled units.

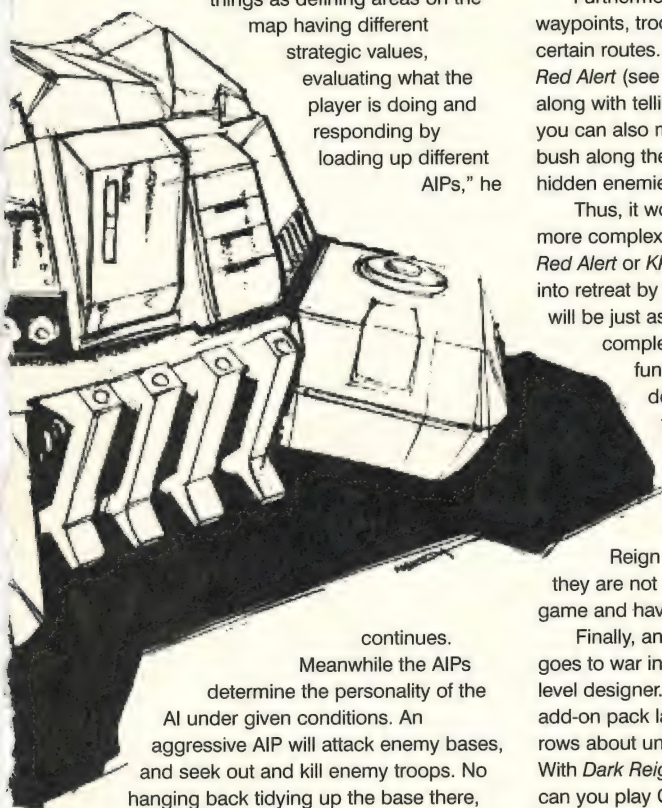




The bases in this early screenshot are of an outlandish, futuristic design. At the moment, however, the game's graphics are being redesigned. The maps will be viewed from a more isometric angle.

technologies called the FSM (Finite State Machine) and the AIP (Artificial Intelligence Personality).

"The FSM allows for such things as defining areas on the map having different strategic values, evaluating what the player is doing and responding by loading up different AIPs," he



continues.

Meanwhile the AIPs determine the personality of the AI under given conditions. An aggressive AIP will attack enemy bases, and seek out and kill enemy troops. No hanging back tidying up the base there, then. A defensive AIP, meanwhile, will defend the perimeter of its territory and concentrate on construction and fortification.

"Beating back a computer attack and then watching it pull back its troops and switch into a defensive mode is quite cool to see," says Millar. "It really makes the game feel less like you are playing against some cheesy programming and more like you are playing against another mind."

Unlike the troops in *Red Alert*, *Dark Reign*'s units can be programmed by the player to behave and react in a certain way. By selecting one and manipulating some sliders on a control bar, you can make it



Rather than mining some made-up crystal, the key resource you have to worry about in this game is good old H<sub>2</sub>O. Here a route is set for carrying water from the well to the base.



The player on the high ground to the right has the advantage of looking down. The blue player, however, can't see the top of the hill.

braver and more aggressive. They can be set to defend an area tenaciously, or to run at the first sign of trouble. Or, you can make them scout around the map.

Furthermore, through the use of waypoints, troops can be made to march certain routes. Admittedly, this is possible in *Red Alert* (see Play to Win, page 64) but along with telling your troops where to walk you can also make them spray fire into the bush along the way in order to flush out hidden enemies.

Thus, it would seem *Dark Reign* will be more complex than the extremely playable *Red Alert* or *KKND*. But Ron Millar isn't sent into retreat by the suggestion: "*Dark Reign* will be just as simple to get into. The complexity lies beneath the basic functions. I believe in this kind of design and have been helping the *Dark Reign* team get this implemented. There is a distinct difference between adding more features and adding more complexity. *Dark Reign* has many cool features but they are not all necessary to get into the game and have a good time."

Finally, and crucially, when *Dark Reign* goes to war in June, it will be released with a level designer. You won't have to buy any add-on pack later on, nor will there be any rows about unofficial levels knocking about. With *Dark Reign*'s level designer, not only can you play God with an array of geological phenomena, but you'll be able to set the objectives for each side. Players can be challenged to hold an area, get stocked up on a certain mineral or just to locate enemy headquarters.

As Millar concludes, "It's like having a giant set of electronic Lego at your fingertips and who doesn't like Lego? I think it's really backward and a bad marketing ploy when companies try to release these editors as separate products. I don't want to buy the game and then spend my hard earned cash to buy the editor also – what a scam. I like to do things like add in the editor for no other reason than it's a cool thing to do."

Whether or not *Dark Reign* really will storm *Red Alert*'s barricades, however, is another story. It was looking intense when we played it, but we'll only know the final word when we get the finished version in June. (GW)

## Dark Reign's six-shot salvo

Here's a quick rundown of the improvements *Dark Reign* will offer to the realtime wargame genre.

- **TERRAIN** – Different units will be affected in different ways by the terrain. Wheeled vehicles will be slowed on rough ground, hovercraft will not. Infantrymen will be able to climb steep hills where vehicles cannot go.
- **REAL LINE OF SIGHT** – You won't be able to shoot through terrain or hit things that are blocked by obstacles. Units will sometimes have to seek the right vantage points to hit the enemy.
- **REAL ELEVATION** – The options available to troops vary according to altitude. If you're high up, you can see and shoot further. If you're in a valley, you won't be able to see very far at all.
- **VETERAN UNITS** – Some of the operatives in the game gain new skills as they gain experience.
- **WAYPOINTS** – You will be able to set waypoints for each unit, and even store your waypoint orders for later use. In addition to setting routes, you can instruct them to fire in certain direction as they move.
- **HUGE MAPS** – *C&C: Red Alert* has maps as large as 96x96 tiles. *Dark Reign* will offer ones stretching to a whopping 256x256 tiles.

## WHEN'S IT OUT

The game should be complete in June. If everything runs smoothly, which it rarely does in the software industry, we should be able to bring you the full review and playable demo in our August issue, on sale July 22. Look out for it.



Units will be programmable.





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FASHIONSTANCE  
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FHM Home Page  
<http://www.erack.com/FHM/>

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HOMEARTS: World  
 of Style  
<http://homearts.com/depts/style/oodpsci.htm>

IS FASHION SILLY?  
<http://www.pittimagine.com/o4/default.htm>

NTOUCH  
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<http://www.dircon.co.uk/lcf/ntouch.html>

PAUL SMITH  
<http://www.paul-smith.co.uk/>

XL FALL 96  
<http://www.cinenet.net/XLarge/xl96/fall96cat.html>

YAHOO! UK &  
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<http://www.yahoo.co.uk/>



All the Web sites mentioned can be reached via PC REVIEW's own Web site at  
<http://www.futurenet.co.uk/>







If you can't tell your V-neck sweaters from your zip-neck fleeces, this handy guide will soon put you straight.

Everything you ever wanted to know about...

# FASHION

What's hot and what's not, what's in and what's a sin – the ephemeral world of fashion seems tailor-made for the Net...

The Internet excels in bringing you up-to-the minute information. No other medium makes publishing so quick-and-easy. This would make it perfect for telling you what not to be seen dead in but for one fatal flaw. The inherent inability of languid fashionable types to remove old news from their sites makes the Web a minefield of poor advice and ill-styling. Unless you want to be laughed at by girls wearing striped purple stockings, tread carefully.

A good place to start your cloth-trawl are the sites of the designers themselves. Here you'll get their creations raw, uncensored by editorial good taste. Perhaps the best of these sites is that of Britain's own Paul Smith. His eminently wearable summer collection – sleek mix-and-match suits paired with brightly coloured T-shirts – actually comes quite low on his site's agenda. Instead we're tempted by photo's of Smith in Junior school or as a long-haired fashion disaster, promoting the designer-as-hero myth of modern styling. Areas devoted to feedback show Smith's not got his head in the clouds, assuming he actually reads them.

Another designer who wants to communicate is Yves St Laurent. "Fashion is a Dialogue," his page claims, although if you met him in the men's department of

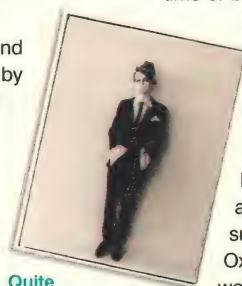
Selfridges you can imagine who'd be doing the talking. To celebrate 30 years of his collections, he's decided to reveal his latest to the Internet community first. Whether this is because he wants everyone to see it at the same time or because he feels the magazines will rip it to shreds

is moot. Only his women's designs are available on-line – a mixture of baggy slacks, sandals and hip-hugging tops. They're worth investigating if you're going on a particularly exclusive Middle Eastern pilgrimage.

Donna Karan's page is black and white, like her clothing, and shockingly introduced by ageing lovers Bruce Willis and Demi Moore. Smart suits riddled with hi-tech Spandex and paired with Oxford shoes dominate the men's clothing, while women can look forward to "Unitards and body-hoses matched with suede modern booties". And you thought hipsters were radical.

Individuality is all very well, but fashion is about wearing what everyone else is wearing. For this, you'll need expert opinion. The men's mag *FHM* has a fairly hip page, updated daily and featuring a healthy slice of its fashion pages. Its top tips for summer include diagonal stripy shirts, V-neck sweaters and logo belts that place letters right above your crotch (particularly handy if you're initials are DKNY, PS or DG).

Meanwhile, *FHM*'s arch-rival *Loaded*'s site, upLoaded, ►



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Without the Internet, you might never have discovered Rod's Fashions. We've made a bulk order – pics next month.



It's important to look your best in the office, not just out on the town at the weekend.

## FASHIONABLE CHAT

What with the Internet becoming increasingly fashionable, it's almost inevitable that every day sees more of the world's beautiful people trying to go on-line. If you want to chat to them, you're probably best off going to your local cybercafe, where you'll find them struggling to run Netscape and eager to talk over a coffee. If you actually want to talk about fashion, there's only one place on the Net to go. Steer clear of red herrings like alt.clothing.sneakers and alt.sex.fetish.fashion and instead go over to alt.fashion. Remember to check out the sites we've talk about first. You wouldn't want to embarrass yourself over a little matter like flat-fronted trousers now, would you? Stay stylish.



## The CD Side of Fashion

Unfortunately, what we wear is far too transitory to entice the interest of CD-ROM publishers. Even the imminent and much-vaunted female CD-ROMs, such as Grolier Interactive's *Karen Mulder* and the *Elle Beauty Guide*, are set to focus on health and skin care.

The only thing we could find on the history of fashion was contained in Women's Rights from News Multimedia. An interactive exhibit on the ways in which men have oppressed women through clothing, it's hardly the place to point you towards tomorrow's

hem length or the correct elevation of the well-heighted heel.

If you're really desperate, the new album from quirky popster's *My Life Story* comes with multimedia enhancements.



Dress Jake Shillingford's naked torso in Britpop with *The Golden Mile*, their latest album.

Stick it into your PC and you're able to visit a strange funfair, where you can win the rights to dress lead singer Jake Shillingford in ridiculous clothing. Not that he needs any help



Dress a bimbo up and then send her out onto the catwalk to rapturous applause.

in this venture.

A more reasonable offering for the budding fashion guru is *Barbie Fashion Designer*. This is fun on a grand scale for everyone (not just eight year old girls) – dress Barbie in an array of barmy 50s cocktail dresses.

Perhaps the only future for fashion and CD-ROMs is to collect up your duff ones and make yourself a stylish cyberpunk CD-Cloak. Who knows, you might find your creation ends up on the Parisian runways next season.



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Grolier Interactive,  
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**THE GOLDEN MILE**  
Parlophone, £12.99

**KAREN MULDER**  
Grolier Interactive,  
£39.99



**7 on 6th** is a good place to catch up on the season's latest fashion shows, from Paris to Milan and New York.



Expect the latest buzzwords but no answers to the eternal question at *Is Fashion Silly?*

offers barely a thread to the clobber-seeking digerati. It's a shame, because its site is otherwise one of the best on the Web. Instead, you'll need to suffer visiting the distinctly unfashionable *Esquire's* site. Despite the decline of the print-based mag, the site offers handy fashion specials, and is regularly updated. *Esquire's* top tips for spring include golfing hats, sandals and nylon rucksacks, a look we've not seen since our O-level geography class. Regular slots for fashion news, style essentials and top bargains make this site a must visit.

These magazines are all stripped down versions of their big print-based brothers. For advice mixed with a more eclectic insight – and aimed specifically at the Net – Web based mags and zines are a better bet. Our favourite is probably *Is Fashion Silly?* This zine takes a high-handed outlook at fashion by considering a series of rhetorical questions. For example, *Is Fashion Culture?* might investigate surfers in Australia, while *Is Fashion Engineering?* goes behind the scenes at a fashion research facility. Read this every month and you'll be writing for *Vogue* by Christmas.

*FadMag* is another outlandish electronic zine – offering articles on the clothing favoured by the London fetish scene (a sort of medieval biker look) and bad boy artist Damien Hirst. Perhaps the best of the bunch is *FashionStance*. Don't be put off by its positively 1994 looks; it's packed with tips

and news on the Internet fashion scene, complete with links. At the moment *FashionStance* is focused on the ladies, but you'll also find articles on tuxedos and various haircuts.

Internationally, *Lumiere* brings you the latest glad-rags from Paris, while New York based *Fashion Smachin* also boasts strong fashion section, called *Papermag*. The writing is quick and sassy, but comes overlaid with style-speak. For instance, we wanted to tell you what colours to wear this spring, but we couldn't understand them. Forget brown being the new black – according to *Papermag* designers like Calvin Klein are wielding a palette of "charcoals, camels, mustards and a splash of spicier pumpkin, woven with shiny fibres with a low-grade sharkskin-style lustre". Great if you're a nomad or a vegetable, but fairly unintelligible if you're looking for a top shirt for Saturday night. Still, it's better than *N-touch*, which many fashion links still point to. This London College of Fashion mag brings you the latest in style, Christmas 1995 style. Like we said, tread carefully.

As well as unfashionable fashion, the increasing peril on the Net is commercialism. If you're looking for Geri Spice's latest boots (Buffalo Boots), Guess fragrances or Gap chinos, you might not think this is a bad thing. But finding information on specific products lines is difficult – with all the American mail-order catalogues around,

you're almost better off typing random '.com's' into your browser then trying your luck with Alta Vista.

As ever, your best bet is to go via the sites that specialise in sending you off to other sites. The *Europe Fashion* home page is a good start, and focused on the European scene. *Fashion Net* is another decent bet, pointing you towards designers, company's sites, magazines, and catalogues. It can even point you towards recruitment agencies.

Indeed, even a brief flirtation with the fashion industry might put you off the business – and the clothes – forever. For instance *Fashion Online* (a resource for the industry rather than the consumer) takes a regular look at textile trends. Basically, this tells you what the world's cloth manufacturers are currently working on up to two years before clothes made from them will arrive. Forget the idea that designers are reacting to the zeitgeist when choosing wacky fabrics or geometric print shirts – they're just picking from a catalogue like ourselves.

When you discover that the Net also bristles with crusades against third-world children making hi-tech trainers and the like, you'll probably realise you haven't been getting the full fashion story before. But then, since the Internet complements its worthy offerings with advice on where to get the best ten-gallon hats or crotchless Y-fronts, you're always in danger of finding out a little more than you really wanted to know. (OB)



The Guess site will tell you everything about its jeans and fragrances, but it's pretty clueless about sensible footwear.



Yves St Laurent. He may be world famous but he still gets embarrassed about his razor burns.



Benetton have togged this young fella up in a pink dress. Fashionable, true, but he doesn't think it's worth it.



# Weird Science

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In-To-The-Net contains a vast array of utilities to get you connected and enhance your use of the Internet and WWW with software for Web Browsing, Mail, FTP, Chat, Web Page Creation, Browser Plugins, Server Suites, and WWW Utilities. We have provided the Microsoft Internet Starter Kit including Internet Explorer versions 2 and 3 with Mail, News, Active Movie and VRML add-ons. Additionally there is a library of WWW page creation resources such as buttons, textures, backgrounds, rulers, VRML, AVIs and themes. There is also a selection of WWW sites containing valuable information on the Internet and HTML that you can browse directly.

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Imagine PD 3D consists of thousands of Imagine 3D objects created by it's Amiga and PC users from around the world using Imagine 1.0 up to Imagine 4.0. The objects fall into many different categories including Anatomy, Animals, Aviation, Botany, Buildings, Computers, Fonts, Furniture, Household, Kitchen, Land, Logos, Misc., Music, Phones, Robots, Ships, Space, sports, Video, Vehicles, Weapons etc.

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The Multimedia Backdrops CD contains 100 backdrops designed for Desktop Video and Multimedia work in the IFF24, TARGA and TIFF file formats in NTSC (752x480) and PAL (768x576) resolutions. The INDEX provides thumbnail renderings of all the backdrops for previewing images.

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Featuring a massive one thousand and seventy eight 256 x 256 pixel textures. Each detailed texture tile can be tessellated to create images with absolute seamless edge to edge matching. Suitable for wrapping around any complex object perfectly or adding instant backdrops for WWW pages etc. Finding the right texture is easy with a 24 page colour index booklet displaying the textures.

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Hundreds of BMP full colour images fully categorised, indexed and provided with thumbnail representations. All of the images are produced using computers and have been created by top computer artists. A huge collection of colour images that make superb colour clip-art or backdrops to your own work.

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### LIGHT ROM GOLD

The very best from Light Rom 1, 2 and 3 with over 6,000 Lightwave objects and scene files. Light Rom Gold was created for those who did not purchase Light Rom 3. The material on Light Rom Gold is compatible with all versions of Lightwave on all platforms. The Lightwave objects and scene files are represented with thumbnail renderings.

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### DEM ROM

The Dem Rom CD contains over 1,000 digital elevation maps (DEMs) from the USGS. Along with these digital elevation maps are thumbnail renderings of their topographical maps in jpeg format for easy previewing. Dem Rom originally appeared on Light Rom 3. The digital elevation maps can be used with any program that accepts the DEM format such as Vista Pro, Scenery Animator or World Construction Set to create beautiful still images or fantastic flights.

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### SCI-FI SENSATIONS 2

Sci-Fi Sensations a double CD science fiction extravaganza now in it's second pressing and updated to version 2. Contains images, games, animations, clip-art, fonts, information, wallpaper, stories, music, samples, 3D objects, game GFX, tools, FLI, FLC, quicktime, AVI and MPEG files, all with a science fiction theme.

**£19.95**

### LIGHT ROM 4

LIGHT-ROM 4, a 2 CD-ROM set for the Amiga, Mac, Windows / NT features all new Lightwave objects and scene files. In addition there is a bonus CD-ROM of 3,000 Jpeg Textures, see below. LIGHT-ROM 4 also includes a collection scene files by Alan Chan. This set contains all new material and is an absolutely superb resource.

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### 3000 JPEG TEXTURES

The 3,000 Jpeg Textures CD contains over 3,000 textures in the Jpeg format. There are thumbnail renderings of every texture. The textures cover all categories including Brick, Bump Maps, Carpet, Cloth, Fabric, Formica, Granite, Greenery, Images, Marble, Organic, Rock, Skin, Stone, Stucco, Tiles and Wood. Realistic high quality textures for a variety of uses.

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Part four: Wham! The PC arrives with a bang...

# THE HISTORY OF THE PC

With its emphasis on individualism and affluence, the decade of the yuppie proved a fertile ground for the upwardly mobile PC.

**A**fter lacklustre attempts by other manufacturers, IBM released the first PC proper in 1981. Initially, it seemed just a quirky alternative to the dumb terminals serving IBM's mainframe and minicomputers. Yet the decisions IBM made when creating that PC shaped the world forever.

Firstly, IBM turned its back on the CP/M operating system that had controlled other computers, and instead developed DOS, in conjunction with Gates' young Turks at Microsoft. The deal gave Microsoft all the profits in return for shouldering the development costs. It seemed a good deal – no-one at IBM realised just how enormous the market was, nor how critical the operating system would prove.

In addition, IBM plumped for Intel's 8088 chip. As the creators of the world's first microprocessor, Intel perhaps deserved the spoils, but there were other choices (say Motorola's 68000 or the Zilog Z80). Again, Intel didn't appreciate its luck. As one engineer recalls, "At the time, a great account was 10,000 units a year. Nobody comprehended the scale the PC business would grow to."

The IBM PC was a big success, not just for Big Blue but for the legions of clone manufacturers offering compatible PCs. Following the basic specifications – 8088, 16K of RAM and 360K floppy disk drive (in 5 1/4" format) – they aimed to make the PC cheaper, rather than better. But this proved difficult. For years PCs were termed 'IBM Compatible PCs', so crucial – and difficult – was this compliance.

In 1983, IBM launched the XT, which boasted a 10MB hard drive. More impressive was 1984's AT. Based on Intel's 80286, it ran at 8MHz and offered 1MB of addressable RAM, 20MB hard disc and 1.2MB floppy drive. The AT consolidated the PC's position as a vital tool for business.

In the home, pathetic graphics and a prohibitive cost held the PC back. But a revolution was taking place there too. Early console systems like the Atari 2600 soon gave way to Clive Sinclair's ZX81 and Spectrum series. The Commodore 64 and the BBC Micro followed in the mid 80s. These machines revealed the huge market for home computing and as the decade ended, the Atari ST and the Amiga went further, proving users wanted more than games. They wanted a creative tool.

Back in business, the PC kept improving. In 1986, Intel released the 32-bit 80386. Compaq's market-leading DESKPRO 386 ran at 16MHz, and signalled the end of IBM's leadership of the PC market. Meanwhile Intel pushed on to create 1989's 80486. With a staggering 1.2 million transistors and a built-in maths co-processor, it ran 50 times faster

than the original 4004.

As PCs proliferated, users needed to exchange information without swapping disks. This led to the widespread installation of Local Area Networks (LANs). PCs connected by LANs could reach the outside world via modems. The seeds were sown for the 90s Internet explosion.

But not everything went Microsoft and Intel's way. For most of the 80s, the PC was outpaced by

Apple's flashier Macintosh. Most significantly, 1984's Apple Mac (based on Motorola's 68000 chip) redefined ease of use, bringing the mouse and windows to the man in the street. But despite technical superiority and a loyal following, Apple's refusal to license the Mac's architecture stopped catching up with the already formidable installed base of PCs.

In 1989 Bill Gates' Microsoft brought his version of the Mac's windows to the PC, with the aptly-named Windows operating system. Windows

made the PC easier to use, but the ageing DOS system remained at its heart. It would take 5 more years and an even better processor before the PC could finally become the best home computer money could buy. (OB)



Early PCs, like the XT and AT, boasted little RAM and barely a dozen colours. Thank goodness for progress.



The Amiga 500 was the world's first home multimedia computer. In terms of graphics and sound, it was years ahead of the PC.



IBM launched the PC with the Charlie Chaplin ad campaign. If an overrated silent actor could operate it, anyone could.

# 1981-1990



# HARD DRIVE

## THE PCR HANDBOOK

### Part Four

**It goes without saying that hard drives are crucial to the efficient operation of your PC. But perhaps you need some help to get more out of it – and on to it.**

**T**he hard drives of today are still basically Winchester drives, invented at IBM and named after the Winchester rifle – because its inventor claimed it would one day be possible to store 30Mb on 30 data tracks in 30ms – 30-30, get it?

Inside is one or more optically flat plates called platters, spinning at at least 3000 rpm. They're made of glass or aluminium and have a thin magnetic coating.

A read/write head – RWH – with a tiny pickup coil made using silicon etching techniques whizzes back and forth a few microns above the platter surface. Its position is dynamically controlled by a voice coil mechanism using special data markings written during the manufacturing process, which is why you shouldn't low level format hard drives.

The basic Winchester style hard drive can be connected to a PC in a number of different ways, although probably only two are worth considering: IDE and SCSI – Intelligent Drive Electronics and Small Computer System Interface.

IDE is based on the original Seagate PC ST506 hard disk controller, and inherited its limitations. Enhanced IDE extended the design to support up to four drives – including tape, and LBAs, Large Block Addressing. LBA is what gives you access to disk drives larger than 528Mb – the previous limit. It can also run at 10Mb/s.

SCSI is a general purpose bus supporting up to seven devices of any kind with transfer speeds up to 20Mb/s using

Wide UltraSCSI on a PCI slot. You can boot your PC from an IDE or SCSI drive.

More importantly, hard drives are now so big that they are running into operating system limits. On PCs running DOS or Windows, hard drives have used the FAT16 addressing system for data – File Allocation Table. This divides every disk into 65,536 addressable clusters, each of which is itself composed of a number of 512 byte sectors.

Because a cluster is the smallest storage unit that Windows or DOS can address it's also the size of the smallest possible file. A quick bit of maths shows a 2Gb disk has 64K clusters. As half of every cluster is wasted, on average, the total wastage (otherwise known as slack) is the number of files on the disk times 32K.

Worse still, Windows itself has a 2.1Gb limit on the size of disk it supports. Windows 95B removes this limit with FAT32, which supports disk partitions of up to 8Gb. For the first 2Gb, the cluster size is reduced to 4K, which dramatically reduces slack. However, not all PCs with Windows 95B have FAT32 installed.

You have several methods of increasing the available storage even with FAT16. You can divide – partition – your physical disk into several smaller

logical disks, which can reduce cluster size and cut slack – see the table. Even more effective is to install DriveSpace disk compression which reduces file slack to around 256 bytes as well as packing more files into less space.

However, hard drive space is now so cheap the best approach is simply to buy some more – the bigger the better. (AC)



**A hard drive. Read more about your storage options, on page 16.**

### Technical Stuff

The method used to store data on a hard drive is to create a number of concentric rings, or cylinders. Around these the magnetic coating is turned into lots of microscopic magnets laid across the track. A bit is set to 'on' by a magnet one way and 'off' the other way.

The latest idea is to stand them vertically. This works on the principle that by making only the north or south magnetic pole accessible you can pack a lot more data into the same space.

In practice, not bits but 8-bit bytes are stored. Each of the 256 possible byte patterns is stored as a special 14-bit code, arranged so that none of the codes are easily confused with each other. There are also error checking and correction bits.

This is necessary because disk RWs work in an analogue, not digital fashion. Random noise from the disk and the detection circuits results in degraded bit patterns – hence an awful lot of guessing has to go on.

Out of interest, the MTBF – Mean Time Between Failure – figure on drives refers to how often they'll get a byte wrong, not how long they'll actually last. In fact, they should never return a wrong byte during their working life.

Despite the high speed, microscopic workings and crumbly signals, hard drives are now one of the most reliable pieces of engineering you're ever likely to use, in or out of the computer field.

PARTITION SIZE	SECTOR/CLUSTER	CLUSTER SIZE
0 - 15MB	8	4K
16 - 127MB	4	2K
128 - 255MB	8	4K
256 - 511MB	16	8K
512 - 1023MB	32	16K
1024 - 2145MB	64	





# THE MAIL

The big and little issues that were on your mind last month are addressed by our editor in our letters page.

## HAPPY IN 3D

Dear PC REVIEW,  
Firstly, may I thank you for your in depth discussions on 3D cards. I have now purchased a *Monster 3D* and am very happy with it indeed. The games packaged with it were worth almost as much as I paid for the whole bundle, including six (count 'em) full versions of specifically 3D enhanced games.

I was wondering whether you have any experience of VR headsets and the like, and if perhaps you would consider doing a similar article on them? Also what do you know of the 3D monitor developments.

Yours,  
Alastair Haley, via email

Thanks for your compliments, Alastair. We've certainly tried out a number of VR headsets and 3D VR spectacles in the past and although we've found them to be interesting for a short while, in the long term they tend to lose their novelty. Hence headsets have remained on the fringe of the PC hardware market. Your suggestion has been taken on board, and perhaps soon we'll don those fancy helmets once

again to see if anything's changed with the newer models. For more on 3D monitors, see our Home of the Future feature on page 33.

## STRANGE POET

Dear PC REVIEW,  
I think you should all check out the following Web site, if you can: <http://q-zone.com/woodcock>.  
Eric Normann, via email

We've checked it out. It's a strange site created by a strange poet. If any other readers have interesting Web sites they want publicised, just let us know.

## 3D FOR ME

Dear PC REVIEW,  
I recently bought a 3D card, the *Apocalypse 3D*, and I'm very impressed by its performance. *Ultimate Race* really is incredible. Sadly enough I've only been able to play the demo version of this awesome game, because here in The Netherlands I haven't been able to find a store which sells PowerVR enhanced games. I contacted the official distributor for the Benelux but they couldn't help me. So now I turn to you

for some help. If I can't by the some games hear maybe I can in the UK. Can you please tell me if in the UK are any stores which already sell PowerVR games?

Sincerely yours,  
Sergio Garcia, via email

The *Apocalypse 3D* is a good card, and *Ultimate Race* is a great advertisement of its capabilities. We've checked with a contact at VideoLogic, manufacturer of the *Apocalypse 3D*, and found that there is no demo version of *Ultimate*

*Race*. Are you sure you don't have the full version on your disc as well as a demo? If not, we suggest you contact whoever sold you the card and its software bundle.



If you have a point to make, write it down and send it to us at the address shown above, or e-mail us at [pcreview@futurenet.co.uk](mailto:pcreview@futurenet.co.uk).

## LETTER OF THE MONTH

### ADDING TO ADD-ONS

Dear PC REVIEW,  
I've read with interest your Play Your Favourite Games Forever feature in the April issue, particularly the part about Virgin Interactive being increasingly incensed by add-on discs like *Perfect Alert*.

What Virgin fails to see is that add-on packs enhance the longevity of original titles and therefore their sales lives – which is only good news for the publisher of the original game. *Doom* became of unlimited fun when third parties started to release thousands of levels. The biggest selling game of all time, *Microsoft Flight Simulator*, has been successful (to the tune of five million copies) exactly because of its unlimited expandability: extra scenery, aircraft, navigation tools, etc. You'll be unlikely to find *Flight Simulator* on the budget racks – exactly where the technically superior, but unexpandable *Flight Unlimited* is now.

Of course, there will be the unscrupulous company that produces 'me too' or 'shovel-ware' products that infringe copyright by using original code and/or graphics. These, quite rightly, should be brought to court. But under current laws there is nothing to stop reverse engineering: witness the success of the small companies against giants such as Nintendo and Sega, which in this country were lambasted by the DTI and Monopolies and Mergers Commission for restrictive practices.

Restrictive practices by hardware and software manufacturers ultimately reduce choice and competition for the consumer. Virgin seems to have kicked up the most fuss about *Red Alert* add-on packs. There wouldn't be any connection between this and the fact that they are releasing their own official mission pack, would there? And why have they not taken any actions before on *Command & Conquer* add-ons?

It should be up to the consumer to decide whether unofficial add-on packs live or die – they

will quickly disappear if they are not what the public wants. Why should the big publishers take away your choice?

Mungo Amyatt-Leir, Marketing Director of Interactive Associates

To bring readers up to speed, Virgin Interactive has withdrawn from the European Leisure Software Publishers Association in a row over unofficial add-on packs such as *Perfect Alert* from Interactive Associates. Even though IA asserts that no original *Red Alert* code is to be found in the pack, Virgin feels that ELSPA should ban these sorts of add-ons. Though PC REVIEW respects Virgin, and we love most Virgin games, we support open-endedness in PC gaming. As we said in our feature, we think level editors and cheap add-on packs add near-infinite fun and value to your games. Unofficial add-ons should not be banned.





# WIN A PC!

Here's a great chance to win a PC and get on-line straight away thanks to Gremlin Interactive, Wireplay and PC REVIEW...



For more on Wireplay software call 0800 800918.

**G**remlin, publisher of *Fragile Allegiance*, *Actua Soccer Club Edition* and *Hard War*, is in celebratory mood. Not only has the company has just acquired the Edinburgh-based developer DMA, but it's soon to see the release of *Fragile Allegiance* for BT's Wireplay on-line gaming service. Being of kind demeanour and feeling in a particularly generous mood, Gremlin has formed a not-so-fragile allegiance with PC REVIEW in order to bring you this fantastic competition.

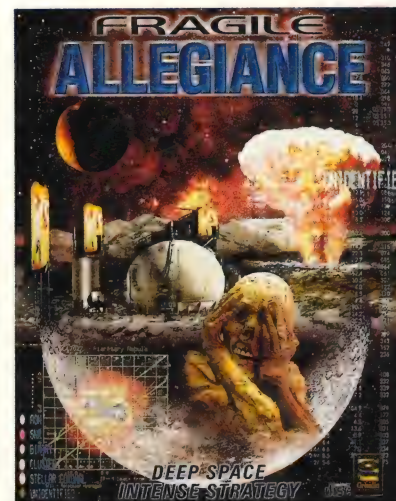
Yes, this is your chance to win a brand new high spec PC complete with a quad speed CD drive, 16Mb RAM, a Sound Blaster compatible sound card and speakers, plus a copy of *Fragile Allegiance*. BT meanwhile, is chucking a Hayes Ultimate Challenge modem into the bundle, along with three other Wireplay-compatible games. And what's more, while the PC with the modem bundle is the first prize, five lucky runners up will each receive a copy of *Fragile Allegiance*.

*Fragile Allegiance*, you may recall, was reviewed in the Christmas issue of PC REVIEW where it received a more than respectable mark of eight. With a Wireplay version coming you can take your space colonisation gaming on-line, facing opponents all over Britain. In *Fragile Allegiance*, you get to build and run settlements, make money, and trade in deadly biological weapons with which to assault your enemies.

There are six alien races out there with which to negotiate or fight.

Playing on-line, you'll be able to compete against up to seven other players, each representing a different outer space mining company. Players can communicate with one another using a special in-game email system to either form alliances, betray one another, or just exchange insults.

The game also employs Gremlin's facial motion capture system as its method of animating the faces of the various alien ambassadors you'll come across. This fact aside, we know that if you win this fantastic PC bundle, you'll be smiling.



If you can't wait to get hold of *Fragile Allegiance* for Wireplay, call Gremlin on 0114 275 3423.

## RULES

1. Answers please on a postcard or in an envelope addressed: *Fragile Allegiance Competition, PC REVIEW, Future Publishing, 30 Monmouth Street, Bath, BA1 2DL*. Or emailed to [pcreview@futurenet.co.uk](mailto:pcreview@futurenet.co.uk).
2. Don't forget to put your name and address on the entry. Make sure that you get it back to us before 26 May.
3. This competition is not open to employees of Gremlin Interactive, BT or Future Publishing.
4. No multiple entries.
5. No correspondence will be entered into over the results of the competition. The judge's decision is final.
6. The winning entry and winner's name will be printed in the July issue of PC REVIEW, on sale 24 June.

## Enter now to win!

To enter our competition, get a postcard and write the answers to these three questions on it.

- 1) Which Scottish company has Gremlin just acquired?
- 2) How many people can take part in a game of *Fragile Allegiance* through Wireplay?
- 3) In which issue did we review *Fragile Allegiance*?

Not hard! Now, just write your name and address on the card and send it to:

**Fragile Allegiance Competition,  
PC REVIEW,  
30 Monmouth Street,  
Bath, BA1 2DL.**

Alternatively, email your entry to [pcreview@futurenet.co.uk](mailto:pcreview@futurenet.co.uk). Only entries containing the correct answers will go into the hat. The first one out wins. Don't forget to include your name and address.



Your prize may not appear exactly as pictured, but it will be a brand new PC.



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# THE HOME OF THE FUTURE

Today, your PC can record your favourite TV programmes, minimise your heating bills, and turn on the lights when it gets dark. Tomorrow, it'll brew the coffee before you even think of asking. ▶



## Design your very own dream home

**H**ome owners who fancy trying a spot of interior design when they move house or re-decorate might find the process somewhat daunting. After all, you can't really judge if new carpets and curtains will match until everything's finished. However, help is at hand in the form of a new piece of PC software, which takes the guesswork away by enabling you to walk through a virtual recreation of your house.

*Visual Home Deluxe* from FastTrack takes advantage of MMX-enhanced Pentium processors by rendering your design in 3D, complete with realistic furniture and electrical appliances. You begin by arranging rooms on a conventional floorplan, then add doors and windows before selecting from a range of over 1000 carpet and wallpaper samples. You can then see how it looks in 3D from any angle, change lighting levels, and even place objects such as plants or tables directly into a room. While the disc

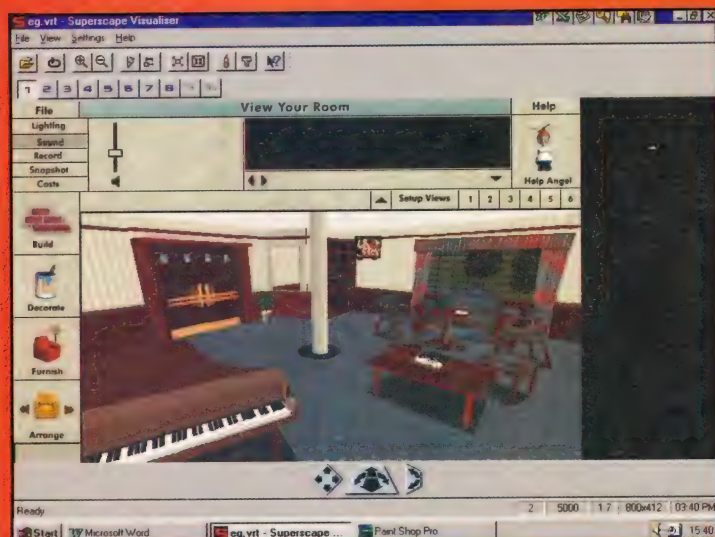
contains over 2000 3D models of furniture, more may be downloaded from the Internet via direct links to the suppliers themselves.

When you're happy with the results, use the budget planner to see if you can afford to build the design, before finally printing out the plans. Alternatively, it's possible to collaborate on the designs with an architect or friends over the Internet, provided they have the same software.

Another useful package is *3D Interior Design II*, which Europress is releasing in July. It promises sound effects like coffee percolating in the kitchen and music playing on the virtual stereo. Meanwhile, have a go at designing for yourself using the demo version of *Visual Home Deluxe* on this month's coverdisc.

*Visual Home Deluxe* • £49.99 • FastTrack ☎ 01923 495 496

*3D Interior Design II* • £29.99 • Europress ☎ 01625 859 333



*3D Interior Design II* from Europress makes it easy to decide where to put your grand piano.



*FastTrack's Visual Home Deluxe* includes over 2000 authentic 3D models of manufacturers' furniture and appliances, and over 1000 material textures.

**W**hat would you really like your home computer to do for you? At present you probably use it for playing games, typing letters and perhaps for keeping track of your bank balance. But you'd probably really like that expensive beige box to start earning its keep. For example, you may want it to automatically turn the light on when you enter a room. Or maybe it could deter burglars by opening and closing the curtains and switching lights on and off when you're away on holiday. And while you're on the beach soaking up the sun, you could call it from your mobile phone and get it to record *The X-Files* if you've forgotten to set the video.

### Anything's possible

These examples are not some techno-fantasy vision of a future home that may never be built because they're all possible right now, and what's perhaps more surprising is that you don't need a degree in electronic engineering or any additional wiring to install automated devices in your own home. However, systems that rely on simple switches, sensors, and pre-determined schedules, look positively dumb in comparison to

technologies that experts are predicting for the future. Internet guru Vinton Cerf is just one futurologist who expects household appliances to understand spoken commands within 50 years. Others think you won't need to talk to your fridge or cooker at all, as they'll simply get on with routine chores with minimal assistance.

If you're desperate to get automated now, though, you can do so using a system called an X10

and a JDS Time Commander interface for the PC, which costs around £300. X10 itself is not a new technology, and can be operated with simple controllers without even needing a computer. However, the addition of a PC interface means that signals can not only be sent, but received and acted on as well. You won't even need to re-wire the house because X10 works through your home's normal mains wiring. All you need do is connect any appliances you want to control to X10 modules, which cost about £35 each and plug directly into mains sockets. What's more, the Time Commander builds in support for devices controlled with infra-red handsets, which could be useful if you have a home cinema system with a video recorder and TV.

### Putting it into practice

Let's suppose your friends have arrived, all eager to see *Star Wars* on your wide-screen set. The push of a single button could close the curtains, dim the lights, start the video and switch on the TV. All you have to remember is to put the tape in first. Of course, you'll need motorised curtains for this particular example, plus an additional gizmo – namely a 'One for all' remote control handset that's capable of operating up to 12 different audio and video appliances. You can then program Time Commander with the correct sequence of button presses, or tell it to turn on the TV at a certain time of day.

Your friends could be enjoying *Star Wars* before you're even home from work, provided you have



Sony's wall TV uses a hybrid of LCD and plasma technology. Pure plasma screens measure up to 42 inches across and weigh just 20kg.



## Browse the Net while you cook in the kitchen

While the humble PC may well find an increasing role controlling lights, radiators, and hi-fi equipment, it's equally likely that future household appliances will become smarter and act more like computers themselves.

Electronic mail and the Internet already rival conventional methods of communication, so it makes sense to combine them all in one unit. And that's exactly what Navitel has done with its TouchPhone, which combines conventional telephone functions with email and Web access. It even looks a little like a PC, with a touch-sensitive VGA screen and a keyboard that slides out when you want to type messages. Since it all runs under the Windows CE operating system, you can keep the TouchPhone's address book up to date with organiser software on your PC.

Possibly its most useful feature is that it runs all the time, retrieving email every hour and switching on a green light if it's received any messages. In addition, it downloads personalised information like news and movie listings from the Internet. Navitel is to sell TouchPhone in the US from August for £312, and hopes to market it in Europe 10 months later.

Navitel isn't the only company hoping that smart appliances will take off. Diba has created software to bring computing power to appliances all around the home, and has licensed it to manufacturers like Panasonic, Samsung and Mitsubishi. Diba itself envisages gadgets like the kitchen assistant, which blends a CD player and television with a database of recipes and dietary information so you can cook and watch Delia Smith at the same time. It's truly a taste of things to come.

«Diba's prototype Mail appliance is designed for people who want to send and receive email without buying a computer.

Navitel's TouchPhone combines a telephone with Internet access and blinks when an email or voice mail message is waiting.



Fitting under a cabinet and providing cooks with much more than food for thought is Diba's prototype kitchen appliance.



another add-on – the JDS TeleCommander, which makes it possible to send basic X10 commands from a remote location via a modem link over the telephone line. And because it links the X10 system and telephone, you can set up TeleCommander to perform the very useful function of muting your CD player or television when someone calls you up.

### Recognising the spoken word

If sending X10 codes down a phone line doesn't sound very futuristic, why not speak them instead? When you match TeleCommander with a Voice Print telephone capable of recognising spoken commands, you can program a PC to send X10 codes when it hears a particular message. Phoning home and saying 'Record the X Files' might switch on the video recorder, turn to the TV channel and start recording. In effect, it gives you voice control, which extends to any phone in the house – even cordless ones if you also own the dedicated X10 receiver.

Full voice control using X10 is a little trickier, is still much in its infancy. PC-based voice recognition software may be linked to the TimeCommander via the serial port, or alternatively there are more elaborate packages such as Butler in a Box, which recognises key phrases spoken by its owner up to a range of about 25 feet. Speaking the word 'television', for example, might be a command to turn on the TV and dim the lights.

Although voice recognition systems haven't yet been perfected, they're clearly well suited for use by

the disabled. Indeed, those who find talking a strain can instead use radio microphones clipped to their clothing.

As well as benefiting those with disabilities, X10 is ideal for looking after other dependents, although you'll need more sophisticated hardware. A JDS Time Commander Plus combined with a set of sensors makes it possible to detect changes in lighting levels or watch out for movement in the house or garden. Sensors placed inside could act as baby-sitters 24 hours a day. If a child begins crying, the PC controller could turn on the TV or set off a dedicated X10 module that plays soothing chimes. If the room gets cold, it could turn on the heating. And it's not only babies who benefit from home automation, explains Judy Ryans of WDC Home Automation, which supplies Time Commander.

"Because you can wire it up to motion detectors and sensors on windows, you can keep an eye on elderly relatives if you wish. For example, if a room isn't accessed within 24 hours the system can send out a warning to alert people," she explains.

Sensors outside the house are highly effective at detecting unwanted visitors, according to Mark McCall, who runs the UK Home Automation site on the Web: "If you have two sensors in your drive, the Time Commander Plus could detect if a car was driving in or if it was going out, depending on which sensor trips first. It could also

open the garage door and turn the light on if it's dusk when you get home."

### It's not cheap

This type of sophistication doesn't come cheap – a Time Commander Plus will set you back £645. But for simpler tasks, such as turning on lights and other appliances, a cheaper solution is the CM11A PC interface. Although it's temporarily unavailable here, it's likely to cost less than £100 when a UK version goes on sale. It comes supplied with DOS or Windows software, and enables you to set up schedules for turning on lights and other appliances. You then download the schedule to the CM11A through your computer's serial port, thus leaving your house ▶

The MindDrive fits on your finger and measures bio-electrical signals in your skin. It enables you to play games just by using your mind.





# MIND GAMES

**P**laying games in your future living room will take a lot more willpower than you might think. With the aid of a device called MindDrive, it's already possible to play computer games with the power of thought.

MindDrive is a wireless ring you wear on your finger that connects to the PC's serial port and works by sensing changes in heart rate, body temperature and blood flow. As your thought patterns change, these bodily functions send varying bio-electrical signals through the skin, which are picked up by the MindDrive. A more basic version was previously used in lie detectors.

The signals are interpreted by an artificial intelligence programme on your computer, which translates the type, size and emotional quality of your thoughts into appropriate commands for the software, such as moving a character on the screen. So if you're playing the slalom game MindSkier, all you do is think yourself through the virtual gates. It's tricky at first, but you get better at it over time. Although it's currently restricted to simple up-and-down

movements, its developer – The Other 90% – intends to add more sophisticated responses in future, including multiple simultaneous controls, and a mind vocabulary of six words.

Besides MindSkier, other games for the device are available now, including a flight simulator and a pinball game, but intriguingly the device will soon be used in a new generation of movies.

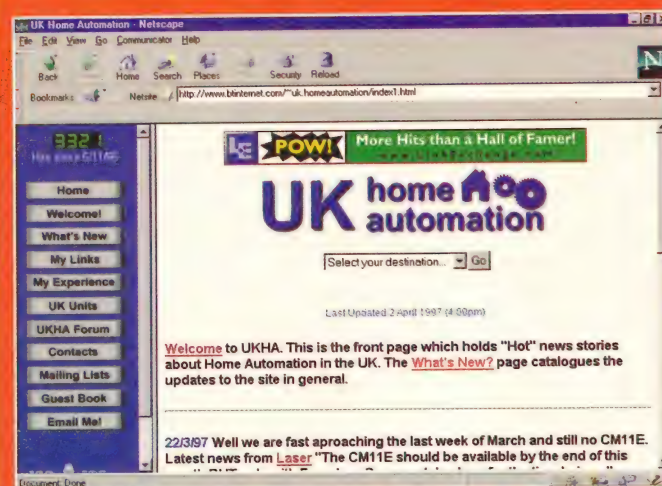
Miramax, the Walt Disney movie company, has licensed the technology and intends to shoot special films that respond to your thoughts, making it possible to watch them a number of times, and see different plot twists and outcomes on each viewing. Full-length features for cinemas may eventually arrive, but PC users will be the first to experience productions, which will be 30 or 40 minutes long.

Whether or not MindDrive will see off rival systems, (at present these require users to wear headsets that detect electrical activity in the brain) remains to be seen. The only certainty will be that the winning system will be the one that best harnesses the power of human thought.

# UK Home Automation

**U**nlike the USA, where X10 is common, widely available and relatively cheap, it's yet to take off in Britain. Mark McCall hopes to rectify that with his UK Home Automation Web site. It boasts a discussion forum where you can contact people with expertise in home automation, a set of links to UK suppliers, and mailing lists for people who use JDS Time Commander equipment.

<http://www.btiinternet.com/~uk.homeautomation/index1.html>



A special infra-red remote control enables you to browse the Web and check for email on your TV

fully automated even when the PC isn't on. You can even write your own PC software for the interface, or take advantage of shareware and commercial programs, some of which include floor plans on which the positions of X10 modules can be easily displayed.

An X10 system controlled from your computer not only saves time and labour – you can save cash too, according to Mark McCall: "My own use of X10 is mostly for convenience but some people use it to control storage heaters and heat exchangers to re-use energy efficiently, so saving money on electricity bills."

## A central PC server

Such everyday advantages point to a large potential market for home automation systems, which leading PC manufacturer IBM is keen to tap. It has built a simple PC interface, called Home Director, into its new range of Aptiva PCs. They're only available in the States at present, and IBM has no plans to market them in Britain. But in the long-term, IBM's strategy is to continue the thinking behind its new S series of Aptivas, which separates the PC's hard disk from its monitor, floppy and CD-ROM drives. IBM's ultimate goal is a single PC acting as a central server for your home, with a number of peripheral devices linked up to it. That way you could watch a film on a remote screen anywhere in the house, by calling up the server PC

to start your DVD player. Or you could play a networked game such as *Quake* against other members of the family in different rooms.

One potential problem with the server model is that the PC would be switched on all the time, consuming electricity when it wasn't needed. That problem will be solved by a feature that Microsoft plans to build into the next version of Windows. The Advanced Configuration and Power Interface (ACPI) will leave a PC switched on all the time in sleeping mode, but will automatically wake it up when called

...the smart coffee pot will send a message to your mug to ask if it's empty or if the contents are cold...

upon to activate peripherals such as video recorders, TVs and stereos. And the idea goes further than that, because the peripherals can talk back. For example inserting a tape into a video recorder could instruct the computer to activate your large-screen TV and high fidelity sound system.

## Simply Interactive PC

Linking a home server PC to items of electrical equipment gives them more functions too. Microsoft sees a television set in the living room running a version of Windows that can be read from the sofa

and which may be operated using an infra-red handset. The so-called Simply Interactive PC would enable you to watch TV shows, play games and receive Web pages customised to your tastes, such as personalised electronic newspapers and magazines.

There is another possibility. Instead of PCs taking over the home, electrical appliances could get smarter instead, and start to take on many of their functions. Examples include set-top boxes for television sets which have already been launched in the US by Sony and Philips, among others. Selling for around £200, they incorporate a 33.6Kbps modem and an email account, as well as browser software for surfing the Internet and accessing dedicated on-line services, which will primarily be geared towards entertainment and leisure.

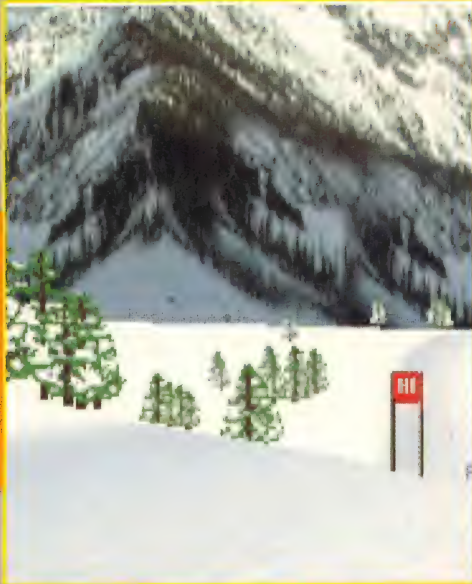
Perhaps even more compelling than simple Web TVs are smart phones that enhance the functions of an advanced telephone by periodically downloading your email or retrieving the latest football scores from the Internet. One such appliance incorporating a built-in modem is Navitel's TouchPhone. Because it runs under Windows CE, (which started life as an operating system for handheld PCs), it's possible to link it up to your PC to share files, which might include phone numbers in an address book.

Telephones and TVs may be the first gadgets to





Control your home with the JDS Time Commander, available from WDC Home Automation 01635 202267.



MindSkier is one of the games available for the MindDrive. Think your way through the slalom simply takes concentration.

get smart, but soon homes will accumulate many types, just as they already have different models of cooking appliances and stereo equipment. We already know what to expect from prototypes designed by Diba, whose software for a new generation of information appliances has been licensed to a number of manufacturers. They're expected to produce devices such as financial organisers and kitchen assistants which will go on sale in the US by the end of the year and are likely to cost less than £200. Diba's platform is already being used in American hotels to provide guests with Internet access from television sets, and Diba Marketing Manager Ellen MacDermid believes they'll appeal to many householders too.

"No longer will people have to buy a hard-to-use, expensive computer just to send emails or browse the Web. And in the future, Internet-enabled TV sets will let television programming and the Internet interact. For example, you will be able to get statistics on your favourite sportsman from the Internet while the game is being televised," she explains.

#### A radical transformation

Just as your television set is being transformed into a screen for displaying information, and appliances like food mixers and toasters begin sprouting LCD screens running Windows CE, so too are computer monitors becoming almost unrecognisable. The latest are much larger cousins of conventional LCD



IBM's isn't selling Aptiva Home Director in the UK. However, you can buy X10 equipment from Laser Business Systems 0181 441 9786.

displays called plasma display panels. Each of their dots is made from a gas discharge cell, and at four inches thick they're thin enough to hang on the wall. If you have a space big enough, that is, because the minimum diagonal screen is 20 inches and the largest manufactured so far is a whopping 42 inches across. Apart from being bigger than any LCD screen, they offer a wider viewing angle and better colour, although the size of each discharge cell means they can only display to VGA resolution. Another drawback is the cost. At £6000 it's an expensive way to display a painting, although one man who can afford one is Bill Gates – it's rumoured that he activates a virtual art gallery as he drives into the garage of his newly-built home.

Aside from painting pretty pictures on the wall, it's likely that large screen displays will find a use for increasingly sophisticated methods of video conferencing, which look set to replace telephones as the medium of choice for communicating with friends or colleagues. A recent development is a system called Massive, which was tested by BT last year. It functions like a version of chat rooms on the Internet that contain several people at any one time, but with an important difference. Each humanoid figure on the screen is surrounded by an aura indicating their hearing range. When two or more auras intersect, an audio link is established between participants, who converse through speakers built into a virtual reality headset. It's easy to see who's talking to whom because the characters' names are

displayed over their heads, and you can either move across the screen to join in a conversation or raise an arm and hope that they'll eventually notice you.

Massive's successors will go even further by making it possible for characters to relay facial expressions and gestures, and even graft live video of your head onto a simulated body, just like in the movie *Disclosure* where Demi Moore chases Michael Douglas through a virtual office. Video conferencing will also put a friendly face to on-line shopping. Video conferencing will also enable you to converse face-to-face with travel agents, bank managers and doctors, and put a friendly face to shopping over the Internet. Of course, there's always the chance that the talking head in front of you will actually belong to a computer.

#### Solving dilemmas

While on-line shopping may be fine for many purchases, buying clothes without first trying them on is far from ideal. However computers could solve that dilemma too, if a new system developed by the University of Bradford takes off. Designed as a catwalk for virtual fashion models, it's able to simulate how different fabrics hang, crease and fold as the model walks along. To guess how you'd look wearing a new garment, all it needs is your measurements and an idea of how you move. It then performs mathematical calculations to simulate thousands of interactions between a person and their clothes. To display such a model takes an



## It's all massive



A video conferencing system called Massive brings greater realism to on-line conversations. You can even use it to bend someone's ear for a private chat.



An on-line Massive meeting room. If you want a more intimate conversation, you will have to find a quiet corner.

immense amount of computing power – to simulate a skirt alone requires calculations for 40,000 different points – so clothes shopping is unlikely to be any easier for a few years yet.

### On-line sport

A new type of leisure activity is possible. On-line sport will ensure everyone gets enough exercise by encouraging head-to-head competition. Home fitness machines developed by CyberSport can already be linked up to the Internet, enabling rowers to compete against each other in races without going anywhere near a cold river. On-line machines will also benefit serious sportsmen. They'll be able to receive personal instruction from a coach on the other side of the world, who can see real-time statistics on how his athlete is performing. But soon you won't even need a rowing machine or treadmill, because Mitsubishi has developed a chip that can recognise human movements such as flying, running or throwing. Because the chip performs all the processing, it's fast enough to enable energetic computer sports such as virtual fighting or football in your front room. In fact, Sega has



New remote controls have specific buttons for browsing Web pages.

## SOFA BROWSING

Soon you'll be able to browse the Internet from a Philips TV set, with menus big enough to be seen from the sofa.



already demonstrated the technology in a game called No Strings.

Real-life games aren't the only new entertainment more powerful computers have made possible. Other leisure applications include television and games displayed in genuine 3D by beaming a slightly different picture into each eye. A highly realistic effect is achieved because this is how the brain normally perceives depth. Australian company Xenotech uses this approach in its 3D system, which illuminates your face with a low-level infra-red light source. A camera sends the infra-red image to a computer, which calculates the position of your eyes and tracks them. So if you move your head, the computer follows your eyes and adjusts the projector move with them. At present, the viewer must sit in a fixed chair, which makes it perfect for arcade games. A multi-player version will follow, as Xenotech plans to extend the system so that 3D pictures can be seen by a number of viewers sitting on a sofa.

Games in glorious 3D may be with us before the decade is out, but researchers at MIT's Media Laboratory in America are looking much further ahead. They envisage home computers so small and powerful you won't even know they're there, working in the background to take the strain out of everyday life. One example is the smart coffee pot that sends a message to your mug to ask if it's

empty or if the contents are cold. If the answer is yes, it will begin brewing a fresh second cup without you having to lift a finger. Also, it will tell the toaster to prepare breakfast and instruct your table to display the latest news headlines, which are customised to your interests. Nor will you ever run out of milk, because the fridge will sense when its stocks are low, and order more food and drink from an on-line store. Such embedded technology requires even smaller and faster computers, along with miniature radio or microwave transmitters to link every object to every other object and to the outside world, via the Internet.

### A weight off our minds

Inventions like these will take a great weight off our minds in the first half of next century, believes Prof Ernest Edmonds, Executive Director of Loughborough University's Telecommunications and Computer-Human Interaction research centre: "Instead of worrying about whether to buy milk or if our coffee is going cold, we will spend time worrying about more rewarding and important things, like which film to see or shares to buy. It will be liberating, just as labour-saving appliances like washing machines and dishwashers released people from mundane chores in the past."

Embedded computers will provide every household with an electronic manservant capable of catering to your every need, 24 hours a day, seven days a week. In the future, there really will be no place like home. (GS)



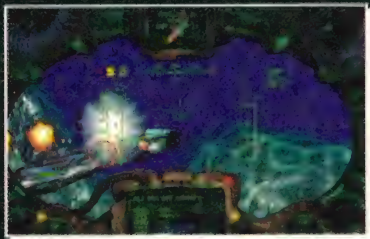











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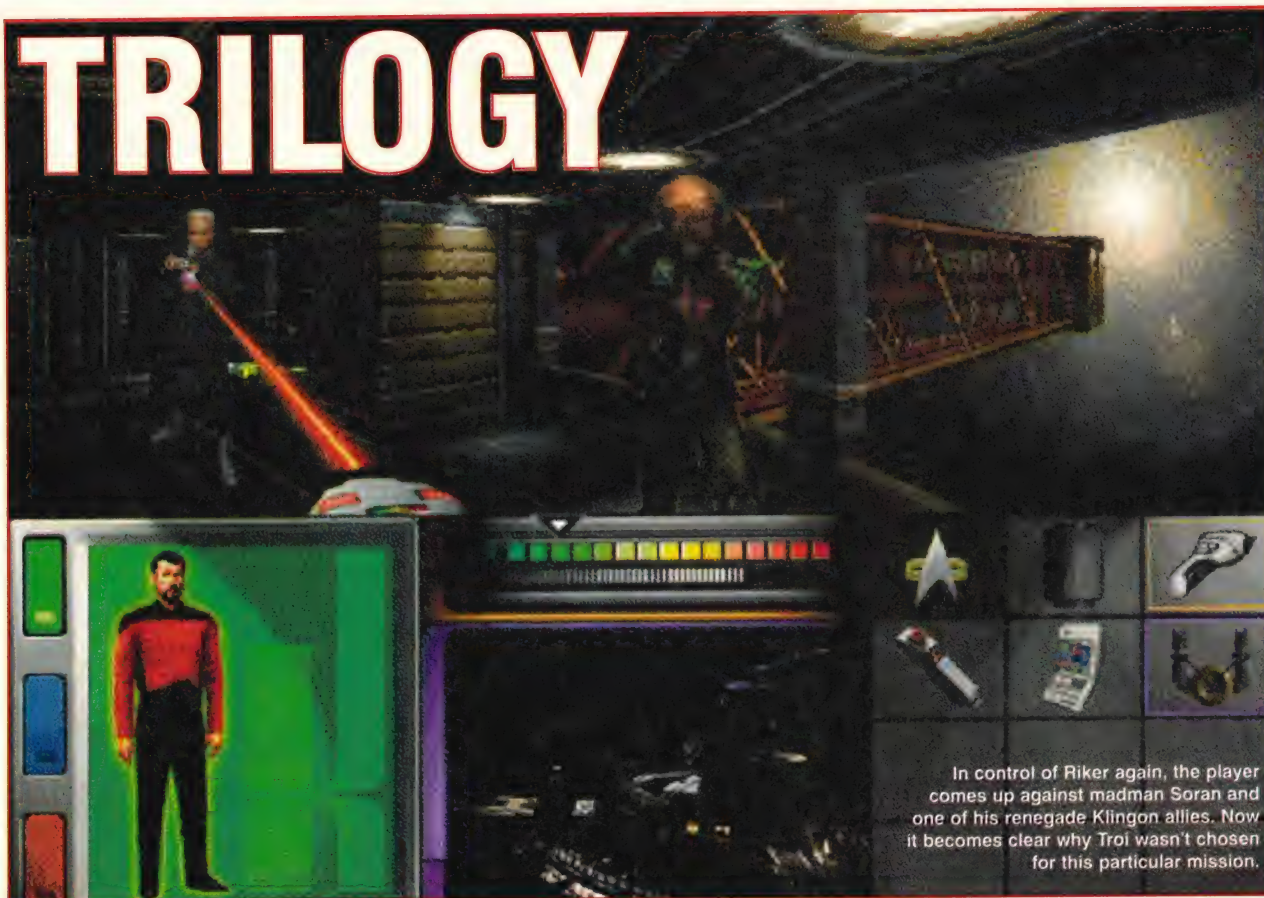






# STAR TREK

## TRILOGY



**The wholesome Picard, the hammy Kirk, and a very familiar space craft are united in a bi-generational, triple-game style battle to save the galaxy.**

**B**efore this review goes any further, it's worth pointing out that there is nothing in this game that will make it interesting to those who detest *Star Trek*. However this is a game for the converted – the use of freshly recorded dialogue from all the actors, the clever expansion of the movie's plot and the brilliantly themed presentation style – all the sort of stuff to make Trekkies squeal with delight. *Star Trek: A Final Unity* wasn't a bad interpretation of the *Star Trek* universe. But this is something else. This is faithful to and yet more ambitious than the subject matter, it's actually considerably better.

As with the movie, the main crisis driving everything along is brought about by the misguided Dr Soran, a man who has tasted paradise thanks to a bizarre interstellar energy wave known as the Nexus. Desperate to get back there, he's blazing a trail across the universe, collecting Trilithium to destroy star systems in a bid to alter the course of the Nexus. It's a bit hokey, obviously, but it just about worked as a movie script, so best to

just go with it. And Dr Soran is played (in both the movie and the game) by the ever-excellent Malcolm McDowell, after all. If there's any one actor you'd believe would ruthlessly wipe out stars to achieve his own personal nirvana, it must be him.

It's Soran who also brings about the meeting of the two generations, his Nexus obsession having already caused the destruction of Kirk (well, so everybody assumes) some 78 years earlier. It doesn't take a genius to work out that when Picard and his band of boldly-going men and women answer a distress call from Soran's old stomping ground (the Armagosa Solar

In control of Riker again, the player comes up against madman Soran and one of his renegade Klingon allies. Now it becomes clear why *Troi* wasn't chosen for this particular mission.



**The locations to be explored in *Generations* are amazingly diverse. There are even underwater sections to navigate.**

Observatory) that both the madman and James T will soon be making an appearance.

Bringing such a story to the small screen is really more than one game style can handle, so MicroProse has opted to create a

## PLAYER



Space...the final frontier. The ongoing mission of games' developers is to go where no other company has gone before and make a *Star Trek* game that's not only faithful to the famous series but playable too. MicroProse has done that with its adaptation of the seventh big screen movie, *Generations*. Space is also the subject of *The Darklight Conflict*, a stylish 3D flying game in which you have to accomplish each mission before moving on to the next. And that wasn't the only game we thought was surprisingly good. Broderbund's *Last Express* did well too, with its involving gameplay and detailed graphics evoking the sights and sounds of the Orient Express before the War. But maybe you're after a faster mode of transport. If so, kick start your engine with *Moto Racer*. And when you've recovered, don't forget to check out our bumper book of tips.

Mark Ramshaw  
pcreview@futurenet.co.uk

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## IT'S ALL IN THE SUB-GAME

In order to do justice to the story of *Star Trek Generations*, MicroProse has opted to integrate three very different game sections. Surprisingly, they work together rather well.



First up is the Stellar Cartography room, where Picard and Data set destinations, gather information on star systems and other bodies, and theorise on the movements of the Nexus and Soran.



Then there's the tactical screen, where it's possible to give general orders or take direct control of the engines, weapons and shields systems of the Enterprise. Just like you always wanted to as a kid.

## TRANSFORMING KIRK

You may know and love William Shatner for his questionable hair and less than earth-shattering acting skills, but in his heyday old Shat was a bit of thespian on the quiet. For proof just check out an album he recorded, called *'The Transformed Man'*. As well as booming his way quite hilariously through passages of Shakespeare, he also happily mutilates such classics as *'Mr Tambourine Man'*. Listen to it at your peril, the ears may not be able to take it, cap'n.

hybrid of strategy, action and exploration. Events revolve around the Stellar Cartography screen, one of many *Next Generation* staples sure to please the fans. Here players give instructions to Picard (who in turn discusses them with Data), plotting courses, checking out star systems, planets and craft for clues as to the path of the Nexus and the whereabouts of Soran. Advice is at hand from other crew members, with the ability to call up previously discussed tidbits of information. Of course, every action in the Stellar Cartography room takes time to carry out, and too much faffing around and performing scans on irrelevant stuff means that Soran can gain an even bigger lead. This isn't the movie, so a happy ending is far less assured.

Navigation quite naturally brings Picard's mob into contact with other craft, often with violent results. It's here that the second game style comes into play. Switching to Worf's tactical combat section, players get to direct the weapons and navigation systems



This particular missions puts the player in control of Worf, so some pretty violent confrontations can be expected. Puzzle solving isn't exactly a Klingon's strong suit, after all.



The quest to find and defeat mad scientist Soran leads Picard and his crew to some pretty far flung corners of the galaxy. Here's the planet Bersus in all its tropical glory.

of the Enterprise, battling against Romulans and allies of Soran. Actual flight can either be done by giving orders to flight controller, or taking direct control of the ship using the usual collection of rolls, dives, climbs, phasers and photons. It's not exactly up there with the thrills offered by *The Darkening* or the *Star Wars* titles, but it's a lot less shabby than you might expect. Particularly when there are all the other elements such as shields for the various systems to take into account, as well as the ability to target specific areas of enemy craft rather than the usual fast blasting game style.

But by far the most important element of *Star Trek Generations* is the away

mission section. It's this that best reflects the feel of the subject matter, though it's actually closer in spirit to the jaunts of the series (both the original and the *Next Generation*) than the movie itself. This is where the teleport room comes into play, as key team members are beamed aboard other vessels, down onto planets, and generally into the thick of it. There are clues to be found and vital objects to locate and use, and much exploration to be done, as well as the odd bit of mucking about with phaser weaponry.

Not entirely surprisingly, it's all achieved using a *Doom*-esque real-time 3D system, though the pace suggests a real adventure game rather than a shoot-'em-up, despite the occasional bits of fighting and the wealth of movement controls. It's perhaps closer in spirit to Gremlin's *Realms Of The Haunting*, though even that game offers far less scope than this. Quite simply, the wealth and diversity of locations is breathtaking, as are the different atmospheres created by them. A good indicator of a mission type is given by the crew member used. Find yourself in





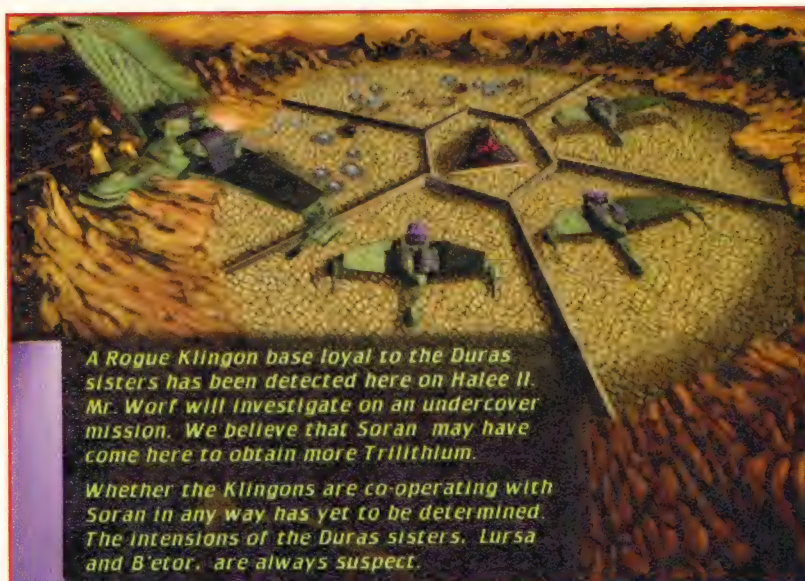
And then there's the real star of the show, the away mission section. All the major stuff happens in this Doom-esque sub-game, as various crew members beam aboard spacecraft and down to planets in a bid to thwart Soran's mad star-destroying scheme.

control of Kirk or Worf and you can expect a fair amount of combat, while a mission using somebody like Data is more likely to tax the brain than your trigger finger. It's another touch which serves to bring the crew and the various characters to life more effectively.

The 3D system used in the away mission section is perhaps a touch on the dated side, lacking speed, decent lighting techniques, and texture variation in any other area. Also, the other characters are sprite-based, further giving the game the look of yesteryear. But it's not really the visuals that are most important here, rather the intelligent level designs and huge diversity of locations are what gives the player a sense of being there. From claustrophobic spaceship corridors to wide-open planetscapes, the locations are brilliantly individual. And thanks to that role-playing based format, they actually serve a purpose rather than working as the backdrop for more combat. The away mission part of the *Generations* may look like the weak link in the chain, but it's actually the sub-game that holds the key to its success.

Of course, there's no real reason why 3D technology used here is less than state of the art. Had the programmers seen fit to combine exploration stages with the elegance of *Quake* and deep space combat with the visceral impact of *Darklight* (page 51), then *Star Trek Generations* would have been all the better for it. It may even have had the potential to break out of the *Trek* ghetto, capturing the imaginations of those less enamoured by talk of warp factors, photon torpedos and Klingons.

There's no getting away from the rich plotline holding the game together, though. Deep, wide and tall, it's hard to imagine a more varied and satisfying way to build upon a movie script. And while they may not win any beauty contests, those sub-games easily manage to do justice to this rock solid base. And all with the voices of William Shatner, Patrick Stewart and Malcolm McDowell et al, too. This all ought to be enough to get even the most Enterprising space cadets (boldly) going. (MR)



A Rogue Klingon base loyal to the Duras sisters has been detected here on Halee II. Mr. Worf will investigate on an undercover mission. We believe that Soran may have come here to obtain more Trillithium.

Whether the Klingons are co-operating with Soran in any way has yet to be determined. The intentions of the Duras sisters, Lursa and B'etor, are always suspect.



Although the actual detail of the locations can be a little crude, the diversity offered by the 3D system in the away missions section is amazing. Here we see the interior of the Enterprise itself.



While this scene shows how effective the graphics engine is at depicting more rough and ready planet surface environments.

Although cut-scenes from the actual movie are used to depict some parts of the plot, these briefing screens give the best indication of what to expect on the away mission sections.

**DEVELOPER**  
MicroProse  
**PUBLISHER**  
MicroProse  
**CONTACT**

01454 893 893

**PRICE**  
£39.99

**MINIMUM SYSTEM**  
Minimum system: P90, 16Mb RAM, quad speed CD-ROM drive, Win 95, mouse and joysticks supported, all major soundcards

**PC REVIEW VERDICT**  
Technically unspectacular, but complex, evocative and rewarding all the same. A real treat for Trek fans.

8



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through

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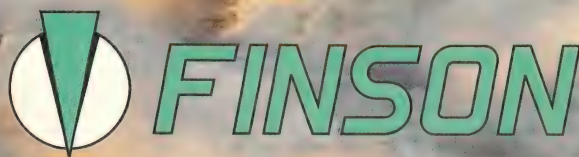
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The Orient Express chugs out of the Gare de l'Est in Paris for a journey of murder and intrigue.



The gang's all here! A motley bunch, aren't they? Each character has their own routines and all that, and they all interact with each other and your good self.

# LAST EXPRESS

It's the eve of the First World War, and your best friend has just been murdered on the Orient Express. Time for a point and click game, then.

**A**s we are all well aware by now, interactive movies are generally complete and utter tripe. However, occasionally we get a game that combines a cinematic style experience with a game that is actually enjoyable to play. Recent notable examples include *Privateer 2: The Darkening*, *Terminator: Skynet*, *Broken Sword*. And now *The Last Express*.

Set on the last trip of the Orient Express (part of which can now be seen rotting away in sunny Elsenham) before WW1, *The Last Express* casts you as a mysterious American bloke who has to do all sorts of heroic things. Of course, you won't know what these are at the beginning of the game because unlike most similar games *The Last Express* chooses not to give everything away in the first five minutes. Interesting...

The other major difference between *The Last Express* and its competition is, rather than using FMV, it utilises rotoscoped actors who (by Special Techniques) have been

turned into cartoons, and been placed over various rendered backdrops. The final look is very stylised and extremely attractive – in fact this is probably one of the most 'arty' looking games ever to have appeared on any format. It's really beautiful and tremendously atmospheric. The voice-overs are also very impressive, and each character in the game has their own proper and complete personality. Well, almost.

Everything (more or less) happens in (more or less) real time, and characters walk about, interact with each other, and generally get on with their lives. This means that catching certain conversations and events can be tricky, but thoughtfully the programmers chose to include a handy 'rewind time'

option, which means you can go backwards in the game to catch bits you missed.

Brilliant, especially if you die for some reason. In the game, that is.

When you start playing it looks like *The Last Express* is going to be some sort of standard whodunnit style affair, but even by the end of the first act a rather freaky and disturbing dream sequence and a Russian bloke who has a spasm and 'goes furry' give you some idea of the bizarreness to follow – plus explosions, sword fights and guns. Also there are lots of interesting ladies for your handsome character to chat up. Hurrah!

So then, *The Last Express*.

Great atmosphere, intriguing plot, clever game engine, and puzzles

which generally fail to infuriate.

It's a recipe for a large train shaped success, and it may cause fans of the previously mentioned *Broken Sword* to wander round bumping into things. However, I'm promised the game contains 'adult themes' later on, so maybe younger readers might want to wait for the forthcoming *Monkey Island* game, which looks lovely too. Great. (TC)



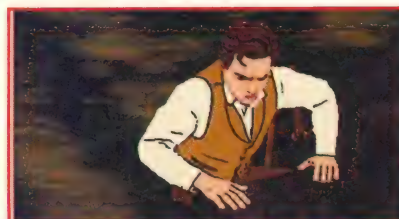
This is the lady that you have a romantic encounter with later on in the game.



Occasionally you get an action sequence in *The Last Express* like avoiding a man who wishes to stab you to death.



This is the lounge, apparently. If all this murder mystery gets to much for you then you might want to come here and put your feet up.



Plenty of climbing-all-over-the-train antics to be had later in the game, including a train top swordfight, excitingly enough.

**DEVELOPER**  
Smoking Car  
Productions  
**PUBLISHER**  
Broderbund  
**PRICE**  
£39.99  
**MINIMUM SYSTEM**  
60 MHz Pentium, 8Mb  
ram, 35Mb hard disk  
space, SVGA, 4 speed  
CD-ROM, SB16 sound-  
card Win 95 or DOS  
6.22..

**PC REVIEW VERDICT**  
A gorgeous  
looking and  
atmospheric  
game and it's  
not rubbish!  
Investigate this  
one  
immediately.

8



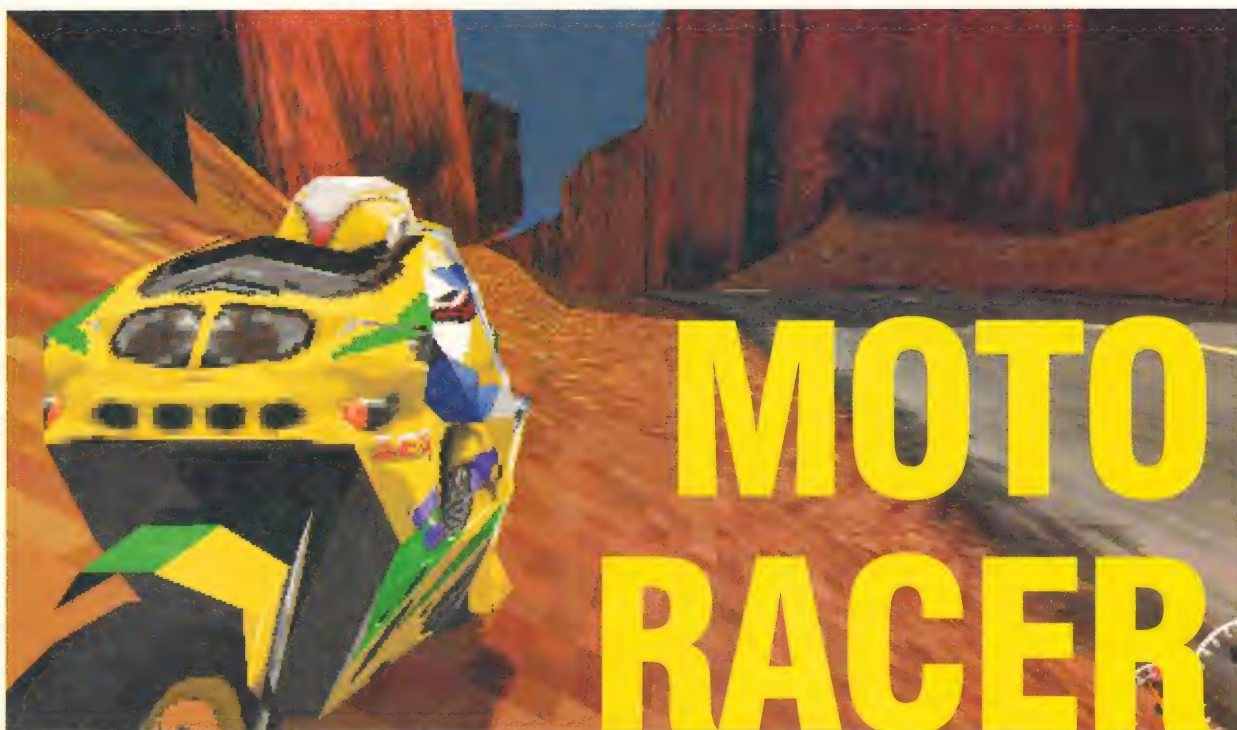


### TEAM SUZUKI

To get the bike dynamics and game-play just right, Delphine consulted the Suzuki motorcycle racing team. Subsequently, Electronic Arts, the publisher of *Moto Racer*, has decided to sponsor the Suzuki bikes. Watch for the telltale EA Sports symbol in amongst all those Lucky Strike and Valvolene logos.

### BRAKING OUT

Although all the bikes in *Moto Racer* have brakes, you very rarely need them when actually playing the game. They seem to be included as a sort of vestigial figment of the physical world rather than through necessity.



**Will it be the one at the top of the podium showering the rest with champagne, or will it wipe out at the first sharp bend?**

According to certain trendy magazines, Vespas, those dinky Italian scooters, are back in fashion. But then those are the mags that have been trying to get you back into bellbottoms for years. They know about as much about motorbikes as they do about trouser hems.

Who would want a Vespa, doing 60mph at a push, when you can have a 750cc superbike hitting 180mph while still holding a few horses in reserve? Not us...

Thank heavens, then, for *Moto Racer*. Here's a superbike of a game that makes the rest look like a mod-squad of refurbished 1960s scooters pattering down the M3 to Brighton. A game that burns past its competition while pulling an outrageous wheely. Here's a game that really is about speed, power and the freedom to ride.

Finally, a decent motorbike game for the PC.

The on-road sections of *Moto Racer* can best be described as *Ridge Racer* with motorbikes. The difference is that on a high spec PC you can probably get *Moto Racer* running a bit faster than you'll see *Ridge Racer* going on a PlayStation. It is that fast.

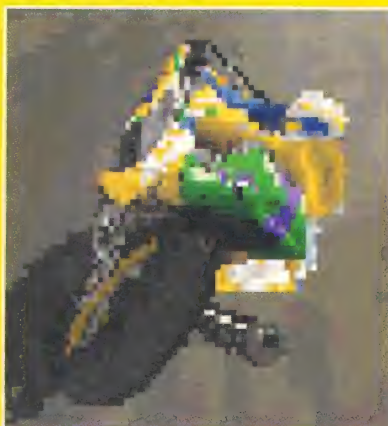
On top of all that speed *Moto Racer* also manages to look vibrant. It runs in 32,000 colours and in the higher resolution screen modes the textures are rich. Each track is intricately detailed. Bomb along the seafront on the first superbike course and gulls fly past. Meanwhile the dirt arena is surrounded by all the garish signs you'd associate with motorcross. During your race, helicopters will take off and land and a blimp passes overhead. The game looks brilliant.

But then several previous biking games

also turned out looking great. However *Moto Racer* delivers what none of the others has been able to manage: that crucial gameplay. The motorcycles feel like real two-wheelers and are very responsive on the track. Turn hard on a road course and your 3D polygonal rider will tuck low and lean into it, dropping a knee in classic fashion to avoid the wipe out. However, on the dirt and snow a whole different set of dynamics applies. Here a sharp turn causes your rider to straighten his body and stick out a foot, pivoting the bike around the bend.

Obviously, incorporating both Tarmac and off-road action means the game offers two distinct sorts of gameplay. On the road it's smooth, slick and speedy – brilliant fun. However, off the road things are a bit more choppy. For some reason, the graphics

### Comparing resolutions



The basic game resolution is 320x200. The game plays exceedingly fast, but tends to look very blocky.



Without 3D acceleration, this is what *Moto Racer* looks like at a resolution of 640x480.



Finally, here's the game as seen with a 3DFX card like the Monster 3D or the Righteous 3D.





Pressing the space bar causes your rider to pull a wheelie, and gives him a speed burst, as we see here in replay mode.



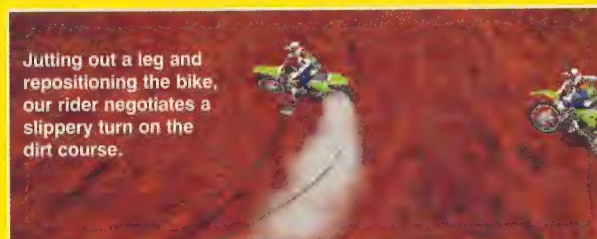
Racing with a viewpoint just behind the biker.



As in arcade games, racing signs flash up warning you of sharp turns.



Eight road bikes and an equal number of dirt bikes are there to choose from, each with varying speeds, acceleration, grip and brakes.



## CHAMPIONS

To proceed to the next race when racing in Championship mode, you have to place in the top three. The pressure of qualification can drive riders to the most desperate of measures, such as crashing into a concrete wall at 180mph, for instance. If you prefer, however, the game also includes network and modem play, enabling you to race up to seven friends and enemies remotely.

engine doesn't hold up so well for the dirt courses and on some of the corners the game gets annoyingly juddery, particularly when there are two or three other bikes on screen at once. Sure, it's big fun to literally leapfrog an opponent by pulling a huge jump, but losing control as you catch the pack because things have gone all jerky can be infuriating.

This problem is compounded by the fact that you can't win in the game's Championship mode without taking on the dirt and snow tracks as well as the road ones. As it is, the Championship sees you on road, then snow, then on the road again, then on dirt, then back to the road – and so on – through eight courses. After that you get to do them all in reverse. It would be better if there were another Championship option with just the paved tracks, allowing those in pursuit of pure speed to feed their

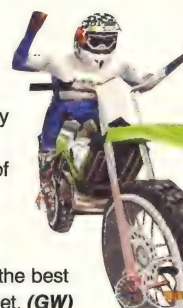
addiction without dirtying themselves in the jerky motocross arenas.

Although you do get some slowdown when encountering other bikes on the road tracks, it's not quite so bad. Fortunately, *Moto Racer* does have several resolution settings ranging from a very blocky 320x200 right up to the luscious detail of 640x480. By finding the right screen resolution you can get a good balance between graphical detail and essential playability. However, to get the very best out of the game, you need a monster machine that can take the strain of having several motorbikes on screen at once in a heavily detailed corner. Even our P166 MMX struggled in places.

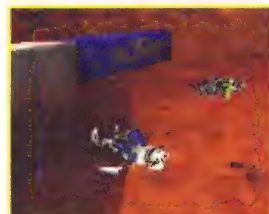
*Moto Racer's* only other slight imperfection is in the sound department. The light dusting of electro music is fine – avoiding the silly techno of Japanese racers or the heavy cheese rock of Stateside

games. The obligatory brash commentator is fine too, hollering, "Wo, what a rocket!" when you hit top speed. Or, "You're the last one!" when, indeed, you are in last place. It's the actual sampled sounds that don't quite do it. We want a roaring 750cc engine ripping up the road, not a lawnmower snipping at the weeds.

However, these problems are mere splatters of grease on what's an otherwise polished motorbiking game. Superbly speedy and utterly addictive, jump onto the saddle of this one and you can definitely leave those tarted up old Vespas behind. *Moto Racer* is the best PC motorcycle game yet. (GW)



The motocross bikes race on dirt, snow and even along the Great Wall of China.



Hit the edges of the track and you can be bounced right off your bike.



The dam bridge on the seaside route is particularly tricky.



The winner prepares to spray his competitors with champagne.

**DEVELOPER**  
Delphine  
**PUBLISHER**  
Electronic Arts  
**PRICE**  
£39.99  
**CONTACT**  
01753 549442  
**MINIMUM SYSTEM**  
P90, 16Mb RAM, 5Mb  
hard disk space, CD  
drive, 2Mb SVGA  
graphics card

PC REVIEW VERDICT

Exhilarating, challenging bike racing. So fast it will make you sick. Nice!

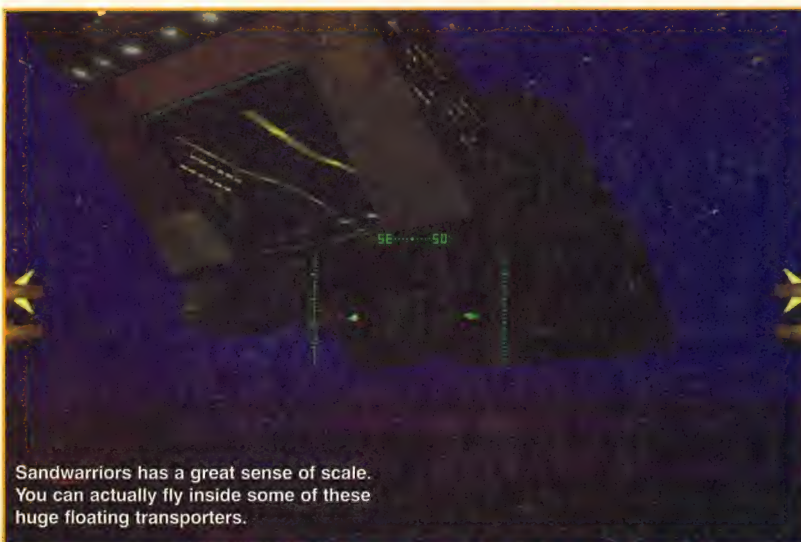
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# DEATH ON THE NILE (NEARLY)

You don't need to be Howard Carter to play *Sandwarriors*, but it would probably help. Tipping its hat to Egypt like a battery-powered monkey, its got ships that look like eagles, pyramid shaped cities, and hieroglyphics a plenty. The modern kit is even better – teleporters are Movers, radar installations are Deep Eyes and all the place names are straight from the Nile delta. Bizarrely though, your flight commander comes from the American Midwest.



Sandwarriors has a great sense of scale. You can actually fly inside some of these huge floating transporters.



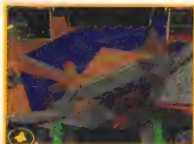
It's good fun twisting after enemy fighters. The sensation of dog fighting is palpable.

# SANDWARRIORS

Fly around ancient Egypt shooting things. No it's not a six-day war flight sim but the latest sci-fi blaster from Gremlin.



Your hieroglyphic map will just about help you if you're lost.



The architecture in *Sandwarriors* blends Los Angeles with the Great Pyramids at Giza.

**DEVELOPER**  
Astros Productions  
**PUBLISHER**  
Gremlin Interactive  
**PRICE**  
£39.99

**CONTACT**  
0114 275 3423  
**MINIMUM SYSTEM**  
Pentium 75Mhz, 16Mb RAM, double-speed CD-ROM.

This interesting yet flawed shoot-em-up isn't bad. The Egyptian influence is much appreciated.

PC REVIEW VERDICT

7

While the Great Pyramids are under constant attack from tourists, they've not yet been threatened with energy weapons. But just think what another 2000 years of Egyptian civilisation might have achieved. Imagine if Ancient Egypt had pushed its genius beyond burying dead kings in 200 metre tall mausoleums. Imagine *Sandwarriors*.

Essentially another pressing from the *Terminal Velocity* mould, *Sandwarriors* centres on the planet Tawy and its two warring nations, House Horus and House Set. You begin at the bottom of the House Osiris pyramid, flying for Horus. Through skill, thought and winning ways with a Vizier chain gun, you aim to progress through the Osiris ranks, earning new weapons and more deadly opponents. Your ship itself is unusual – it can both hover and strafe like a helicopter as well as fly fast. Another neat touch is the special manoeuvres. These enable you to gain or lose height very quickly, or circle around a selected target, hurting it at your leisure. They're crucial for destroying some units, but will quickly drain your energy reserves if they are overused.

Graphically, the drab brown landscape of Tawy is unlikely to attract the intergalactic day. The giant monolithic cities and

structures that dot the landscape are far more exciting. Astros Productions has done a good job fusing its hi-tech world with the ancient Egyptian setting. You'll fly through cities embedded in the hills and criss-crossed with walkways and attack massive floating sentinels. Even the Setian oil-rigs would make a Pharaoh proud.

Unfortunately, it's not all sand and sunshine in *Sandwarriors*. For a start, achieving your mission objectives is a constant struggle. A game should be challenging through great level design, clever enemies and increasingly difficult odds. But *Sandwarriors* simply bothers you to death. Under near constant attack by small fighter craft, you waste time and energy despatching them but it doesn't seem to dent their numbers. Your missile indicator is almost always flashing and the computer intones "Warning" non-stop. This rapidly gets tedious.

Another problem is the limited store of carried ammunition. There's never enough to finish your objectives, even defend yourself.



Looking left reveals which weapon you've got mounted.

So you're constantly hunting for weapons boxes, or making trips to underground

bases. Your shields are quickly run down too, forcing you to retreat to recharge. This all-permeating impotence does *Sandwarriors*' shoot-'em-up credentials no good.

The geography is also unconvincing, with uniformly scattered outposts and settlements. You zoom by a friendly city only to fly straight into an enemy one.

Underground bases stacked with weaponry sit defenceless while enemy fighters fight you above, ignoring the juicier target below. A better approach might have been a distinct front line, with territories clashing together like continents colliding. Astros' previous flight sim, *Retribution*, was criticised for huge stretches in which nothing happened. It seems to have gone the other way this time.

*Sandwarriors* is not a bad game. The ship handles well; dog fighting is fun; there's a nice variety of weaponry and the Egyptian mythos is a welcome change. But compared to the ancient *Terminal Velocity* or the imminent *X-Wing Vs Tie Fighter*, it's just not in the top rank. (OB)



A Delta Plasma cannon soon starts upsetting this giant transporter.



The manner in which huge structures collapse is one of the best features of *Sandwarriors*.

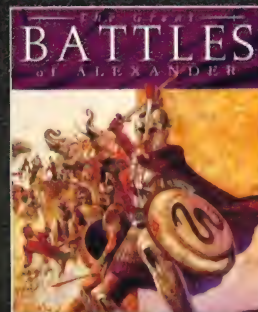
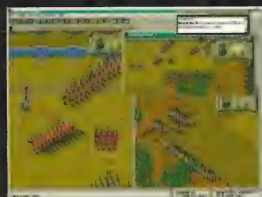


The remains of the fray, and the transporter is deflated like a balloon.



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### FITTING IN THE DOCK OF THE BAY

Anybody raised on 80s classic games will remember the wonderful, but almost impossible docking sequences. Trying to fly through a letterbox hole while it rotated was a task few could master. *Darklight* offers a similar, though thankfully easier docking sequence. Once again timing is the key, with a constantly moving carrier and rapidly closing doors the obstacles this time.



Approaching the carrier, our pilot prepares to hit the brakes.



Coming smoothly, the next trick is to sort out the angle of entry.



Sadly the art of getting in before the bay doors shut can prove much harder.

Minimalist design and arty lighting techniques make Electronic Arts' latest deep space foray a sight to behold.



*Darklight* offers no maps, no actors, no trading, no planets – just unadulterated, tastefully shot space combat.

# DARKLIGHT

There's a rush on to fill out virtual worlds with the most textures and the highest level of detail. Game designers have forgotten some of the fundamentals. Like fluid gameplay, for instance. It's all very well whacking solid textured 3D all over the place, but if the level of detail slows everything down to a crawl then you lose all sense of control and suspension of disbelief. And even if a compromise between detail and frame rate is reached, it's still almost impossible to create a seductively real scene using basic textured 3D.

Light sourcing is what's needed, and there aren't many 3D systems that can accommodate it as well as good texturing.

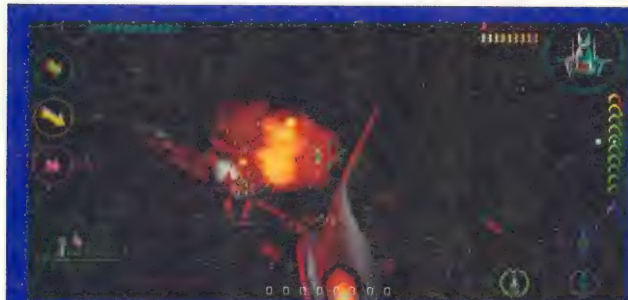
Not unless they're designed to run with a 3D accelerator card, anyway.

As *Darklight* pairs down the level of detail on its 3D objects, the designers have been able to focus on the cinematic importance of lighting. The systems inhabited by the player are lit by twin, differently coloured stars. Hence lens flare figures largely. And every laser shot, engine glow and explosion affects the way objects are lit. This interplay between these lights brings into play some great translucency effects. Play *Darklight* for a few minutes and you'll begin to wonder what all the fuss was about texture mapped 3D.

The whole design behind the gameplay

is similarly sparse, but again this isn't such a bad thing. *Darklight* works in a heads-down, mission-by-mission kind of way. Thus, the emphasis is placed on flying proficiency and good old-fashioned gunplay. And it's all realised using dreamily-smooth graphics, equally tasty sound effects, with a hefty dose of real physics in the flight mechanics. In fact it harks back to the silky smooth battles of *Elite*, which in turn paid a debt to the floaty scenes of Kubrik's *2001: A Space Odyssey*.

Is that it? Not exactly, because while the basic idea is very simple, developer Rage has seen fit to build an admirable level of variation in the missions, the enemy types and the arsenal at the player's disposal.



Trying to defend something this big whilst avoiding crashing into the thing is easier said than done.



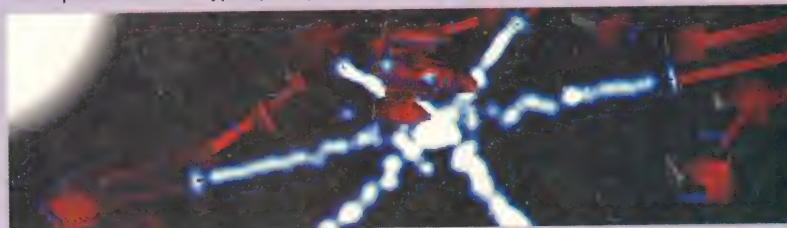
Just when you think you've got the hang of it, more enemy space ships pop out of hyperspace and blow the thing to hell and back.



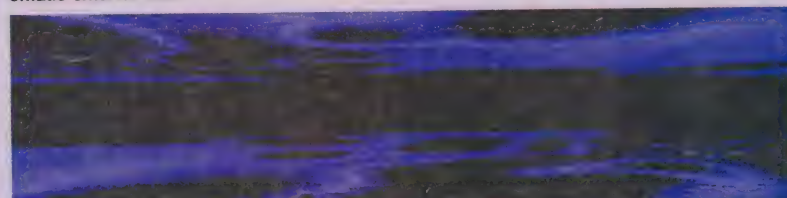


## In the Wink of an Eye

The representation of hyperspace jumping is one of the coolest elements of the game.



Fly toward a hyperspace portal and the viewpoint automatically switches to a suitably cinematic exterior one.



Once in hyperspace those memories of 2001 come flooding back. Some hyperspace ducts require you to dodge rather than simply admire the scenery.



Seconds later and the craft reappears in an altogether more dangerous part of the universe. Accompanied by loads of great lighting effects, obviously.

Virus bombs, scatter missiles, good old fashioned lasers – they're all here and looking better than ever. It's a testament to the subtleties of using such weaponry that the first handful of missions don't do anything but train the player in the art of using them, ready for the real challenge of the other 40 odd missions.

Just as the whole game structure is broken down into strict mission sections, the actual playing environment is broken into bite-sized morsels too. By keeping strands of action firmly within set areas joined by hyperspace portals, the game does away with any bits of quietness. A mission generally involves launching, flying through a hyperspace hole, knocking out a few bad guys, hyperspacing back and docking. Short, sweet, and perfectly paced. What's more, the physical laws which govern the player's craft also have a bearing on the enemy, making their flight paths and strategies that bit more believable. Even the player's carrier

ship glides on a predetermined course through space. Which obviously makes docking just that little bit more challenging.

Naturally, a multi-player network option is also available, with freeform fighting or specific missions to undertake. It's great fun, but it's this one area which shows up the limited scope of the game. While the heavily focused arcade-meets-sim style suits the one-player game down to the ground, it does leave the multi-player games far less satisfying than the likes of *Doom* or *Quake*. Maybe space is just a little too empty for the human element to work its magic successfully.

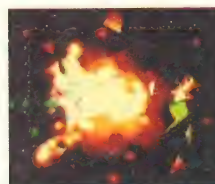
By rights *Darklight* should be an also-ran. The plot is nothing special, there's nothing as ambitious as a campaign mode, there are no planets to skim over, no big film licence to stick the whole thing onto, and no

loud and proud FMV to make you feel like big money has been spent on it. But all these supposed failings are exactly what makes the game so playable. Rather than wade through a bunch of movie clips only to

be confronted with a fairly pedestrian bit of space combat, the idea of diving right into some fast and fruity action is a godsend. And in that non-textured, specially lit graphical style, *Rage* has come up with visual identity perfectly in tune with the gameplay developer. It does away with artificial additives, and as a result looks all the brighter and cleaner.

*Darklight* is faster, more fluid, and far more explosive than the competition. It may struggle against the imminent *X Wing Vs Tie Fighter*, but that doesn't make it any less desirable. And desire it you should.

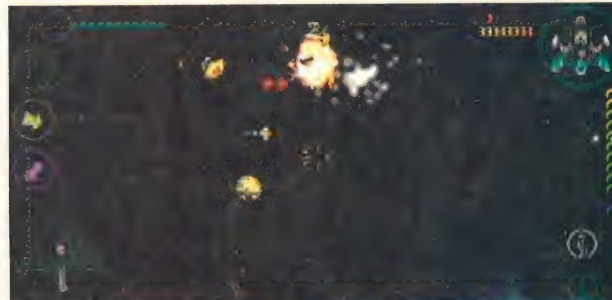
(MR)



With a myriad of cool translucency effects, and loads of light casting, the explosions in *Darklight* are a blast.



Solo pilots can forgo the 50 missions in favour of freeform combat. The task is simply to fly around, defending the space carrier.



Scatter missiles are great for wiping out the bad guys well before you see the whites of their eyes. The explosions are pretty cool, too.

**DEVELOPER**  
Rage  
**PUBLISHER**  
Electronic Arts  
**CONTACT**  
01753 549442  
**PRICE**  
£39.99  
**MINIMUM SYSTEM**  
P60, 16Mb RAM, CD-ROM drive, Win95 supported, mouse, all major soundcards, joysticks, network and modem

PC REVIEW VERDICT

Smooth – this is deep space combat the way it's supposed to look and feel. Quietly stunning.

8

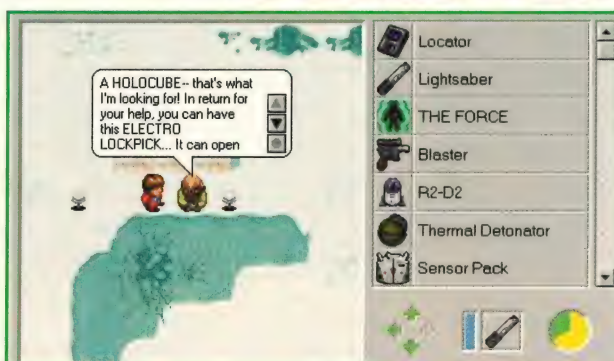


# YODA STORIES

Yoda Stories is about as much fun as skinny-dipping on Hoth.



Luke has contracted Bloaty Head disease from a recent visit to a Theme Hospital, fortunately he can still fit into his X-Wing.



This geezer wants fitting up with a holocube. In return he'll swap you a lockpick. So do a quick deal with the similar looking bloke eight screens to the left and bring back the goods.

Ben is down there. Where Luke is wagging his lightsabre. Notice how the incredibly complicated boulder pattern that revealed the secret entrance.

**S**tar Wars is about action, adventure and spectacular special effects. On the other hand, *Yoda Stories* is as far, far away from drama as you can get. Our Yoda maybe a mighty Jedi Master but he's a John Major of a story teller. Basically this is a monotonously simple puzzle game. The biggest puzzle is why LucasArts bothered.

It's meant to be a desktop accessory that'll wean you off *Minesweeper* and *Solitaire* with cute graphics and an infinite level generator. You point-to-click Luke Skywalker around 20 or so screens that join up to form the game world. Bumping into your little green taskmaster will pop up a speech bubble that reveals the first part of the puzzle. Thereafter every game follows the same routine of swapping objects between different static sprites or pushing crates on switches and other such mind-missing jobs.

It's all crushingly dull because the puzzles are more obvious than a Spice Girl and must be completed in a pre-determined order. Anyone who knows of the previous game in this series – *Indiana Jones And His Desktop Adventures* – should be advised that *Yoda Stories* is exactly the same again only dressed up as *Star Wars*. Sort of.

While the graphics are affable enough – if hardly *Star Wars* – the box label warning of animated violence is a joke. The combat is barely worthy of the name, never mind its bloody bland results and the word

'animated' should be preceded with the words 'very poorly'. Sprites disappear and incredibly reappear moments later, several pixels away, as if they were super-beings capable of speeds that defied the eye. Only we know the truth. It's the PC equivalent of flick book animation.

What with the entire nation entranced by the Special Edition films, anything remotely connected with *Star Wars* will sell right now. In fact the best thing about the package is the included Making Magic CD – a behind-the-scenes peek at the *Star Wars* movie

facelift. Our chums at *PC Format* gave it away free last month.

*Yoda Stories* may be only £15, but so what? You don't shell out on a tedious experience because it's cheap. But, LucasArts reason, each game will be over in less than an hour. It's not soon enough. If you have a spare hour waste it on a book, talking to people, playing *Quake* or even *Solitaire*. All these pursuits pose a challenge that senile old Yoda has forgotten about entirely. It may be 'easy-to-play' but it's even easier to switch off. (AC)

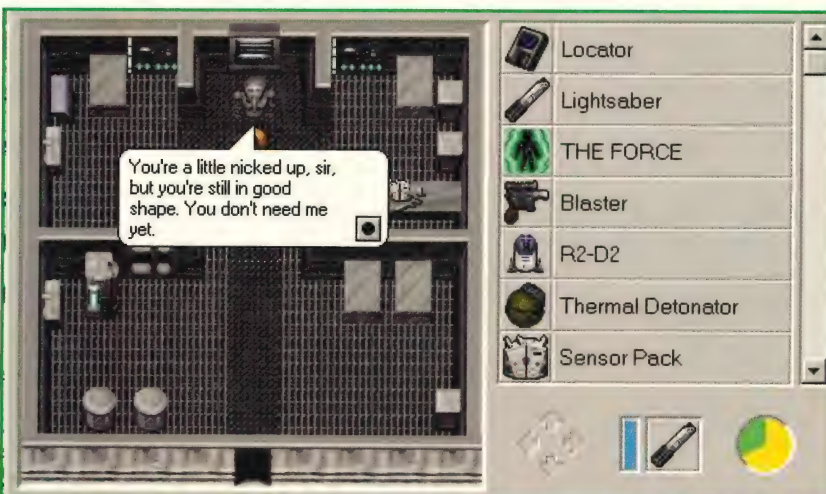
DEVELOPER  
LucasArts  
PUBLISHER  
Virgin  
CONTACT  
0171 3682255

PRICE  
£15  
MINIMUM SYSTEM  
486/66, 8Mb RAM,  
Double speed CD-  
ROM, mouse, Win 95,  
all Windows sound-  
cards supported

Yoda says "Try not. Do. Or do not. There is no try." Certainly LucasArts didn't bother to try in this case anyway.

4

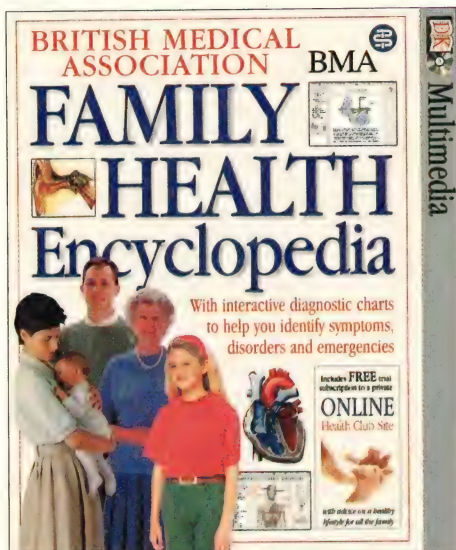
PC REVIEW VERDICT



"Look Sir, droids." The medical droid is meant to patch you up when you become sick of blaster hits. But he won't give me a note to get out of playing *Yoda Stories*.



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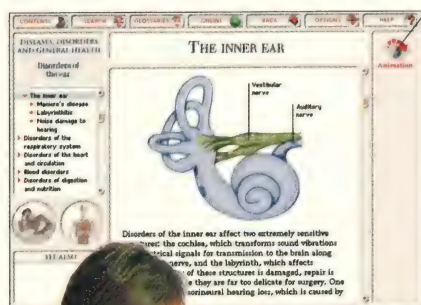
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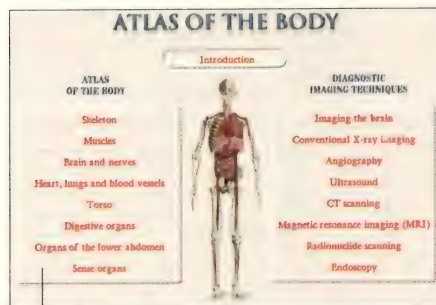
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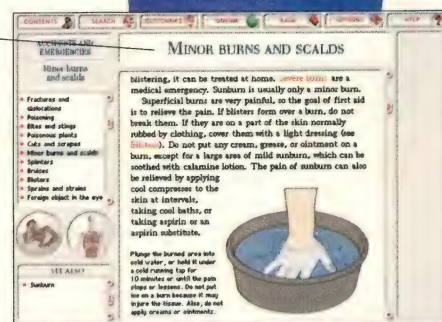
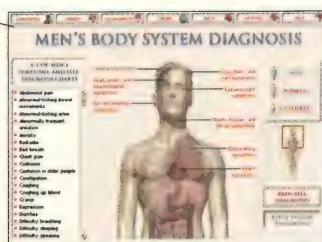


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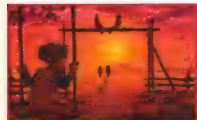
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RRP: £39.99





## A COWBOY MOVIE

*Outlaws* kicks off with a wonderfully animated scene-setter. The characters are as rich as Disneys, and everything, from the camera angles to the lighting, is quite superb.



Anderson's little daughter Sarah is the first to spot trouble coming. Presumably these men haven't arrived to congratulate her on her swinging prowess.



"Ma'am, may I present you and your husband with quite literally a once-in-a-lifetime opportunity?" These crooks get railroad land the heavy way.



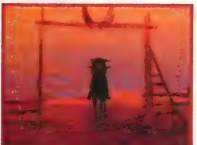
The offer refused, one lifetime rushes to an end. There is much screaming as Dr Death goes for the kill, Hitchcock style.



James Anderson returns to find his wife nearly dead and his daughter gone. He probably forget the sugar too.



As his life burns down all around him, the Marshall vows to find his daughter, whatever it takes. And we vow to as well, not realising what's coming.



Anderson heads off to hunt down his wife's killers.

James 'The Marshall' Anderson, shortly before joining the Sisters of Mercy.

Outlaws doesn't exactly encourage noble behaviour. The safest way to shoot someone in a gun fight is in the back.



# OUTLAWS

You never shot an innocent man," says the sycophantic grocer as he hands James Anderson (ex-toughest lawman in the West) a bottle of perfume for his wife who is currently being butchered by bandits at Anderson's farm. "I never met an innocent man," he deadpans.

Welcome to *Outlaws* from LucasArts, the first Spaghetti Western for 30 years, complete with strong cheese. Riding through Sergio Leone country with a shotgun, LucasArts has rounded up a motley posse of the good, the bad and the ugly and the result's as patchy as the scrub lands of Nevada.

To the good, *Outlaws* boasts superb *Full Throttle*-style desert animation, great music and a plethora of shotguns. The bad - it's based on the *Dark Forces* 3D engine, which is, frankly, old. And as for the ugly, look at any screenshot. *Outlaws* wants to be an action/adventure, but it's just another *Doom* clone, albeit with a plot and decent cut scenes. For all its poncho-clad posturing, if *Outlaws* were a cowboy, it wouldn't be Clint Eastwood from *The Unforgiven*, it'd

be Emilio Estevez from *Young Guns*. It's not what you would call a classic.

The basic storyline is timeless. You're James Anderson, an ex-Sheriff who's swapped your silver star for a wife, daughter and a poorly run farm. Under pressure from a railroad baron and his gang of cronies to sell your land, you instead ride into town to collect your shopping. When you return, your baby girl's gone, your wife is terminally beaten up and the house is on fire. A stark reminder of the dangers of out-of-town shopping.

The animations are breathtaking. With cinematic scope, the camera pans out to show an embittered Anderson riding across the plains, beneath a purple sky. The characters are perfectly realised, from arch-villain 'Gentleman' Bob Graham to 'Slim'



Anderson's daughter Sarah. Would you kill countless men for this little brat?



*Outlaws* gets one thing right - the re-loading sequence is nice and clunky, with a satisfying click as the shells pop in.



Close up, and the sprites assume that characteristic *Crimewatch* look that we'd hoped we'd seen the last of.

We start with rednecks working on the railroad. It seems that crooked railroad tycoons were as widespread in the wild west as they are today.



It rides into town, all wrapped up in fancy clothing. But is LucasArts' *Outlaws* a no good drifter or a gold hearted loner?

Sam Fulton, a mop haired halfwit sidekick. The intro lasts for ages too, and it really gets your ten gallon cowboy hat on.

Alas, the gulf between the top-quality full motion video and the sub-standard first person game is immediately obvious. The brightly lit frontier-towns look like the propped-up houses of Hollywood legend. Rather than a cowboy film, you soon realise you're very much in a PC game, and it's one you've visited a dozen times already.

Like the rest of the latest generation of *Doom* clones, *Outlaws* has quite a lot of space and a touch of the outdoors. But sadly *Killing Time*, *Exhumed* and now *Outlaws* merely show how wise it was in setting the original in miserable murky tunnels. Not only is subterranea short of panoramic views, its inherently drab (and hence easily made realistic) and naturally linear.

In contrast, a frontier town should bustle



Another building, another room of milling cowboys. At least this one has an innocent bystander to liven up the action.





This horse is standing so still because he's not scared of no-one. However many times you shot him, he just stares stoically ahead.

with life, space and purposeful villains. All we've got here is the space – big empty streets encircling box-like stores. The life comes from endless cowboy sprites, who jerk epileptically behind closed doors and roam mindlessly in front of your six-shooter. That and the occasional flapping chicken and indestructible cow. Hardly a West worth winning.

The engine is smooth enough but, as ever, unengaging after the realism of *Quake*. It takes a good 20 minutes of playing *Outlaws* before you begin to forget *Quake* and concentrate on killing the endless enemies. *Outlaws* dispels the myth that *Doom* was better than *Quake* because it had more bad guys. Here there are sprites everywhere, but they seem puny and flat. Another critical difference is you get no fireballs or flames to dodge, just bullets. Even *Dark Forces* had visible blaster fire. Guns fire around you all the time in *Outlaws* – sometimes you get hit, sometimes you don't. It's realistic but it inevitably feels a little arbitrary.

The adventure element presumably comes from collecting keys to open doors elsewhere on the level, and pocketing other strange objects like crowbars and shovels, (which are just keys by another name). Of course, there's



More than a hint of *Dark Forces* to this cowboy outpost. You're bounty hunting a bandit, but you might almost be after Skywalker himself.

no interaction with any other characters and no puzzles. The plot develops well – you're rewarded with new animation and a bit more plot after each level – but eventually even this just highlights the paucity of fun between levels.

LucasArts is one of our best developers. For 1997, it is promising titles to match the legacy of *TIEFighter* and the *Monkey Island* series – new games like *X-Wing Vs TIEFighter*, *Jedi Knight* and *Monkey Island 3*. Of course, it's not the first developer to underestimate the first-person shoot-em-up. Let's hope *Outlaws* stands as a cautionary tale for the *Jedi Knight* team.

As for *Outlaws*, it never really stood a chance. With its ageing engine and fiddley gameplay, *Outlaws* sticks itself in a one-man Mexican stand-off, stubbornly holding a gun to its head. (OB)

## A CLASSIC?

Daron Stinnet, the project leader for *Outlaws* says: "Outlaws is a true action-adventure title. By using both the 3D engine from *Dark Forces* and the INSANE engine from *Rebel Assault II*, the game will be the first to deliver all of the components of classic 60s Westerns in an interactive format." We think he should get down to K-Mart more often.



Dr Death is evil to the core. But very hygienic too – note the rubber gloves.

## CD REVIEW

There's a fully playable demo of *Outlaws* on CD Review.

**DEVELOPER**  
LucasArts  
**PUBLISHER**  
Virgin  
**CONTACT**  
0171 3682255  
**PRICE**  
£40  
**MINIMUM SYSTEM**  
P60, 16Mb, Win95

PC REVIEW VERDICT

The age old tale of revenge as rendered by a passable age old *Doom* clone.

6



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## The Nude Tomb Raider Page

<http://www.nucore.com/~dssg7/reviews2.html>

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## DO THEY MEAN US?

To play *Interstate 76* is to recall a childhood watching dodgy American cop shows and low-budget car chase movies. The game's logo is a homage to *Charlie's Angels* itself, while the hero's car and the tire-squealing hi-jinks bear more than a passing resemblance to those in *Dukes Of Hazzard*. Add an intro sequence which recalls everything like *Starsky & Hutch* and the pastiche is complete. That said, the gun fetish is very 90s and the afro-headed Taurus character bears a remarkably similar vocal style and attitude to a certain Pulp Fiction hitman.

# INTERSTATE 76

Activision whip out the bell bottoms and get the funk, for a '70s crime show pastiche with added horsepower.



Sparse but effective landscapes, cool lighting and explosion effects, and a whole lot of car warring - *Interstate 76* is probably the hippest PC game ever.



Even the overhead viewpoint has its uses, making driving between key locations even easier. As with the regular external views, it's possible to zoom the camera in and out.

**DEVELOPER**  
Activision  
**PUBLISHER**  
Activision  
**CONTACT**  
01895 464 885  
**PRICE**  
£39.99

**MINIMUM SYSTEM**  
P90, 16Mb RAM,  
quad-speed CD-ROM  
drive, Win95, mouse, all  
major soundcards,  
joysticks, network and  
modem support

The combat lacks subtlety, but the witty, stylish, action-packed format proves too good to resist. Groovy.

# 8

PC REVIEW VERDICT

Those platform shoes, the heavy eyeliner, the wiggle in the walk - and that was just the guys. The 70s may have been the decade that taste forgot, but they sure were eye-catching. Everything was larger than life; the pulpy American action shows of the day were larger still.

Activision has struck gold by setting their all-action, all-swinging car chase game in the long hot summer of 76. Except this is some alternative past, where oil is scarce and Texas is falling foul of the criminal element. Only a bunch of right-minded vigilantes can prevent total anarchy, the latest recruit being the wonderfully named Groove Champion. The player assumes the role of the badass side-burned Dennis Weaver-esque character, as he takes over where his recently murdered sister left off. Fifteen missions await, the aim being to clean up those desert roads and take out Carlo De Funghi, the killer of Groove's sis. Now that's how to set the scene for a computer game.

But the too-cool scene setting doesn't end there. Playing through *Interstate 76*, the storyline is always there to lead the player. It's achieved by using cut-scenes that always either copy or actually use the in-game graphics, and through loads of in-game voice-overs, every task, mistake or success is commented on by driving buddy Taurus. Even the training section is presented using the voice of Groove's sister, instructing from the grave via a tape in the car stereo. Forget all that FMV dominating the likes of the *Wing Commander* games. This is the way to tie freeform gameplay with tight plotting. With a little help from Taurus, players can be speeding into valleys blasting their car-mounted weaponry at the bad guys in no

time. And with the opportunity to recover and use items salvaged from battles, that feeling of progression is further heightened. While the likes of *Need For Speed 2* go all out for the rush of the race, *Interstate 76* offers a far more barbaric joyride.

Even the visual style is spot on, going for a sort of angular retro feel on the actual characters, while the difficult task of

presenting far-reaching desert landscapes is well handled - the wealth of options making it possible to trade-off landscape detail against resolution. It's even possible to get the game running at 800x600 pixels or higher on a low end Pentium, if you're willing to give up the ground texturing, which is no great loss given that the look will still fit in with that heavily stylised form of presentation.

Of course, it's the car combat that's really central to the game, despite the heavy 70s iconography and a blisteringly good soundtrack of funk instrumentals. Which is why a bunch of single scenarios and a freeform combat option have been included, with the opportunity to take on one or several computer drivers, or a bunch of mates via modem, network or the Internet. The only fly on the windshield here is that, while the car handling is superb, the actual combat proves a tad disorientating. Using

Groove's hand appears holding his CB receiver whenever he communicates with Taurus.



The training section is presented using the voice of Groove's sister, via the car stereo.

an external view makes things less dizzying, but you lose aiming accuracy. Fighting is still great fun, but not quite as refined as Activision's *Mechwarrior*, which this game has much in common with.

*Interstate 76* is easily one of the most immersive and charismatic games around, that brilliantly integrated storyline pointing the way forward for plot-driven action games.

Granted it's a little too trashy to be considered a real classic, but then so was *Starsky & Hutch*.

And just think how much fun that was.

(MR)







# NEED FOR SPEED

# 2

More speed for the needy in a beefed up, more eye-pleasing racing sequel.

The distinctive Cala, one of eight manhood enhancers available in NFS 2.

## FIND A FRIEND

As with Electronic Arts' other multi-player titles, gamers can now track down other humans to compete with via the EA web site (<http://www.ea.com>) using the 'Multi-player Matchup' facility. By registering an e-mail address here, or responding to one already posted, gamers can get in direct contact with like-minded players, arrange a time to play, then compete via a direct modem connection.

Isn't irony great? Just look at the way it makes games like *Need For Speed* to run at a snail's pace on nearly all PCs except those belonging to NASA. Oh sure, there was the option to lose all the track detail or insert black horizontal lines through the picture, but where's the fun in that?

So, it's some relief that the sequel actually manages to pound the tarmac with a decent sense of pace. And all with even better scenery to gawp at than its predecessor. After all, a sense of speed and nice surroundings are half the battle with racing games. The other half is to find a good balance between realism and arcade simplicity for the car handling. Like the original, *NFS2* gets the latter just about right, offering a more finicky ride than the Sega Rallies of this world, but still finding time for much tyre-squealing and countless car-takes-off, car-hits-ground moments. It's the latter which make the game such fun, bringing the best out of that muscle cars on real roads concept. It's like having the Grand Prix reinterpreted as a chase scene from *Smokey & The Bandit*. Yep, that spectacular.



The obligatory snow course, perfect for turning that penchant for power slides into a full-blown obsession.

The cars (and there are a fair few of them) are all of the low drag factor, high horsepower variety, including the obligatory McLaren F1 and Ferrari F40, as well as more obscure and frankly more exciting boys' toys such as the Ford GT90 and Isdera Commendatore. The real fetishists can even look longingly at still shots and video footage of the beasts in action, as well as check out the various histories. Great – if you like that sort of thing. The tracks are a rather stranger area. Taking in locations as far flung as Nepal and Australia, they all

manage to cram in enough scenery to capture the flavour of the area, as well as enough hairpins, dips and hills to put the suspension through its paces; this is a 3D racing game which really makes use of all three dimensions. And yet there's something vital missing from the tracks – the flat colours and long stretches of similar trackside detail giving many sections a clinical, wholly artificial look. It's this repetition of textures, compounded with the struggle to convincingly depict stupidly high speeds which leads to that old backward-driving optical illusion. When the car suddenly appears to be going backwards, things can get pretty confusing.

Okay, so *Need For Speed 2* can't offer the immersive, all-action fun of *Interstate 76*, and even judged as a no-nonsense bit of car fetishism, it isn't quite a top-notch, arcade-level racer. Despite the cool extras like rollovers, skid marks and smoke trails, it remains empty looking in graphic style. But at least the idea of letting players loose with real speed machines on regular roads is finally given the sort of treatment it deserves, the improved 3D and ever-winding roads ensuring that the action always remains pretty hairy. At least this means you don't have to worry about bald tyres. (MR)



A natty camera flyby precedes each race, always a good way to demonstrate the power of your 3D system.



A traditionally sliced split screen option is available for those with friends, but without the necessary pair of modems (and funds to pay for the subsequent phone bill).



The skids, smoke and crashes are superb, and given the difficulty of controlling a high-speed vehicle even in the arcade mode, they are all effects most players will see a lot of.

**DEVELOPER**  
Electronic Arts  
**PUBLISHER**  
EA USA  
**CONTACT**  
01753 549442  
**PRICE**  
£39.99

**MINIMUM SYSTEM**  
P90, 16Mb RAM,  
quad-speed CD-ROM  
drive, Win95, mouse,  
all major soundcards,  
joysticks, network and  
modem support

**PC REVIEW VERDICT**  
Not the most  
inventive racer  
around, but  
easily dynamic  
enough to  
warrant a test  
drive.

# 7





# UEFA CHAMPIONS

## LEAGUE 96/97

### THE BIG PICTURE



The ability to zoom right in and out of the action and even change the viewing angle makes UEFA Champions the most versatile 3D-minded football experience yet. It's actually possible to zoom out even further than this, to the point where the clouds and floodlights are even visible.



The combination of crudely drawn polygon players and ultra-detailed animation is puzzling. Whatever, the game looks far better in play than in static shots.

**DEVELOPER**  
Krisalis  
**PUBLISHER**  
Philips Media  
**CONTACT**  
0171 911 3000

**PRICE**  
£339.99

**MINIMUM SYSTEM**  
P60, 16Mb RAM, double speed CD drive, mouse and joysticks, sound-cards, 3Dfx and Matrox Mystique accelerators, Win 95

Lacking the all-rounder talents 3D footballing so desperately needs, but a valiant effort all the same.

PC REVIEW VERDICT

7

**Another football contender pitches for success in the tricky world of 3D sport.**



The player representations in UEFA Champions are easily the weakest aspect of the graphics. Even the rendered intro can't seem to draw them properly.

Think for a moment about the way you watch a football match. Whether it's on the terraces or at home you tend to get an end-to-end, side-on, or vaguely diagonal view of the action. It's only natural for game designers to want to replicate those views, replacing the primitive overhead views of oldies like *Sensible Soccer* with something far more, well, sensible.

But what most people forget is that viewers watching a match in glorious 3D-o-vision rarely get to appreciate both the finer detail and the big picture. If you focus on the whole pitch it's easier to see how the team players all work together, but it's impossible to look closely at the exact moves performed by any one player. Finding a happy medium that's suitable for watching and controlling the action isn't easy – particularly when there's the directional passing and shooting problem to take into account. Which is probably why 3D footy games tend to offer a whole bunch of different angles. And it's also probably why none of them has really delivered the gameplay goods.

UEFA gets off to a promising start, offering a whole bunch of zooming and viewing angle controls as well as the usual range of angles. It's still hard to find a more suitable viewpoint than the overhead one, though, but at least the options are there. The actual pace of the game is pretty

faithfully captured, too, kicks and throws pretty well approximating the real action, and only appearing slightly accelerated. This then is a game that really does move like the real thing, something furthered by the near way the players' motion is replicated, and the way they control the ball. Ironically, the actual 3D shapes of the players are pretty unattractive, so don't take the lack of beauty in the still shots of the game as a good indicator.

The UEFA licence will please the fanatics, of course, as will the wealth of authenticity it brings to the team and player statistics. The more technical minded, meanwhile, can savour the 3D accelerator



True fans will delight that all the genuine strips of the UEFA clubs are used, along with other true-to-life statistics.



For once the computer-controlled goalies actually seem to neither superhuman nor super-dumb. They even take on attackers in a remarkably believable manner.

options and respectable frame rate achieved even without one. A sports game lives or dies by the control and computer intelligence routines, however. And it's here that UEFA's real strengths and weaknesses lie.

The actual control system is refreshingly direct, avoiding the automated feel of FIFA, the players actually respond immediately. Impressive stuff, given the complex animation used. The directional aspect of the system is even better, for once making passing an intuitive, integral part of the game. Tackling is somewhat woollier, though. Practice does improve matters, but it never really becomes a precise science. And then there's the AI of the other players. Some aspects seem spot on – team mates seem always in the right place at the right time, and the goalies come across as admirably human. But there's also the way the other team responds when the player has possession – it's even possible to stand perfectly still on the pitch for several seconds before the opposition move in. It's hardly what you would call realistic.

With its no-nonsense visual representation of the beloved sport, and that effective control system, this game takes on the role of the ugly underdog, the one that beats the opposition despite the lack of airs and graces. Only the rough edges in the AI and tackling sections destroy the feelgood factor, critically preventing it from making it to the top of the league. It's a cliché, but a highly appropriate one – UEFA Champions League 96/97 really is a game of two halves. (MR)



As the game's title suggests, the list of featured players and their attributes is well up to date.



# NBA JAM EXTREME

## Basketball with a twist from Acclaim.

The *NBA Jam* series has always been renowned for its larger than life graphics, in your face action and mad commentary. This new update revolutionises things, swapping the usual sprites for fully featured polygonal chaps with a rotating 3D court to boot.

You have the option of playing as any of the NBA's 29 teams and there's a selection of six players from each. In one player mode, you control one player in a team of two which can be quite restrictive when it comes to performing moves like the 'allez oop' where one player tosses the ball up and the other

Flames emit strangely from your players' shoes at all the right times.

slams it through the hoop. There are a great deal of shots and dunks included, however, but the reliance on the multiplayer mode is a little annoying when you're on your own.

The problem with *Extreme* is its basic nature. Although continuing the fun style expected of this Jam series, having a maximum of just four players on the court leaves the game lacking, especially when compared with EA's *NBA Live 97*. Control can frequently become unresponsive and your shooting style is far too random to make play tactical in any way. *Extreme* is fun and great looking but it's full of annoying niggles. Buy it to keep the kids amused for a year or two. (AC)

**DEVELOPER**  
Sculptured Software  
**PUBLISHER**  
Acclaim  
**CONTACT**  
0171 344 5000  
**PRICE**  
TBA  
**MINIMUM SYSTEM**  
P133, 16Mb RAM,  
double speed CD,  
40Mb hard disk  
Win95  
2Mb SVGA video card

Great fun for any gamer, although it is mentally troubled.

## PC REVIEW VERDICT

7

Choose your player from a selection of obscenely tall americans.

**Boomshakalacka. Or something.**

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[illegible]





# BANZAI BUG

**Banzai Bug – The Flight Sim With An Attitude! Except it's not a flight sim. It's got to be better than Santa Bugito, though.**

**B**anzai Bug is perhaps surprisingly a fairly bizarre *Descent* variant, with all sorts of hilarious insect characters replacing floaty robot killing machines. The story has something to do with your character (the eponymous Banzai) getting trapped in the house of an exterminator who has created an army of robotic bugs to rid his house of creepy-crawly pests (which seems to be a bit self-defeating, really). Banzai eventually meets up with a sort of underground resistance (led by a slug), who he agrees to help in return for safe exit from the living hell he is trapped in.

Each level has a different objective, but mostly you're flying round shooting things, which is no bad thing. Of course, not unusually for a Windows 95 game, *Banzai Bug* is technically malodorous, but due

to lots of nice touches and wacky sound effects and music, you can forgive it, up to a point. That point being the 'protect the crap convoy level', where the grubs you are meant to be defending are so rubbish you feel like them blowing them out of the sky yourself. Things aren't helped

by the slightly dodgy control system and graphics which get jerky at the meagrest opportunity. A pity, as for a bit *Banzai Bug* is quite a laugh. (TC)

**DEVELOPER**  
Gravity  
**PUBLISHER**  
Groller Interactive  
**CONTACT**  
01865 264800  
**PRICE**  
£29.99  
**MINIMUM SYSTEM**  
P90, 8Mb, CD-ROM,  
Windows 95

An entertaining concept messed up by poor programming and the questionable design of certain sections.

5

PC REVIEW VERDICT



The first level: Banzai attempts to fire pieces of food before he gets clobbered by the evil exterminator's little robots. Harsh.



The evil 'defend the grubs' level. And here is the exterminator himself. Be warned, if shot he becomes enraged. Apparently.



The fire bubble is subtle and just causes all the bubbles near it to explode.

**DEVELOPERS**  
Kinesoft  
**PUBLISHER**  
GTI  
**CONTACT**  
0171 258 3791  
**PRICE**  
£20  
**MINIMUM SYSTEM**  
Any Windows 95 system.

The simplistic graphics don't mar the game's ample frolic-bounty. Two players recommended, though.

8

PC REVIEW VERDICT



The two player mode. If you wait before shooting a bubble off you get a warning. When it expires your first-born are slain.



On the first level you get this handy laser-sight style thing to help you aim your bubbles more accurately. Later you're on your own.



On later levels you get certain extra bubbles containing special powers – this one causes a waterfall that turns all the bubbles one colour.

**Video game veterans Bub and Bob come out of retirement again to front a quirky little action puzzler.**

**P**uzzle Bobble may look rather familiar to some of you, possibly because you suffer from particularly disturbing nightmares, or more likely because you have witnessed it in one of its arcade or PlayStation incarnations (where it's called *Bust-A-Move*, just to confuse you).

It's a spin-off from the *Bubble Bobble* series of arcade platform games, which were rather popular in the heady 80s, but this time it's head to head colour-connecting puzzle-y action rather than the platform antics that

made the characters famous.

The idea is to connect similarly coloured bubbles together (which causes them to disappear), by firing them from your dinosaurs' massive crossbow. If you mess up so badly that the bubbles reach the floor then you lose, and your poor dinos get knocked unconscious. In the one player mode all you have to worry about is your own incompetence, but in the two player mode things get a bit more spicy and interesting. If one player causes a set of

bubbles to disappear, and there are some spare bubbles underneath that set unconnected to anything else, then the whole lot gets dumped randomly on their opponent's side of the screen.

And that's it. Cunningly simple, yet monstrously enjoyable, *Puzzle Bobble* is fantastic fun. However the (admittedly addictive) one-player game may become a little tedious after a while, so if you have got someone to play it with, it comes strongly recommended. Lovely. (TC)



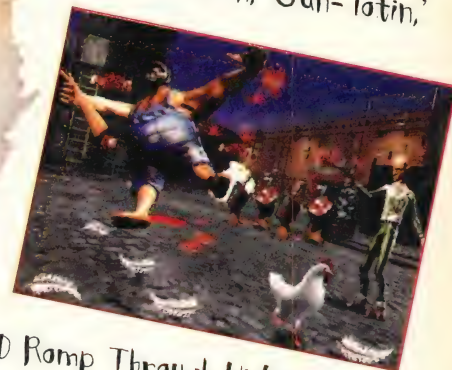
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# REISSUES

Some games get an inferiority complex when they're old because nobody buys them anymore. But they're easily pleased, so publishers keep them happy with a lower price and a brand new box.

## COMMAND & CONQUER WINDOWS 95

Westwood built on its success with *Dune 2* in the original *Command & Conquer*, bringing decent graphics, fast gameplay, and fun to the tired old wargaming format. A groundbreaking release at the time, it's since been superseded by the all-conquering *Red Alert*. But *Command & Conquer* is back in a new Windows 95 edition with which you can also battle a human opponent head to head over the Internet. Real opponents aside, the asking price seems steep for an old title, even though it's earned its stripes with SVGA graphics and a larger visible playing area.

£34.99 • Virgin Interactive • 0171 368 2255



NOD units enter a civilian village in *Command & Conquer*. Now you can play it over the Internet.

## HIND & APACHE LONGBOW

Fans of helicopter simulations are literally on cloud nine at the moment. Not only is the brand new *Commanche 3* astoundingly good, but a new twin pack from Digital Integration gives virtual pilots the chance to fly both an advanced *Apache Longbow*, and a Soviet *Hind* helicopter gunship. With *Hind* you serve as a troop ship, carrying soldiers into the theatre of war and watching them stride into action. While neither *Hind* nor *Apache* boast texture-mapped landscapes, both have plenty of targets and enough absorbing missions to keep you fully absorbed in their gameplay.

£29.99 • Digital Integration • 01276 684 959



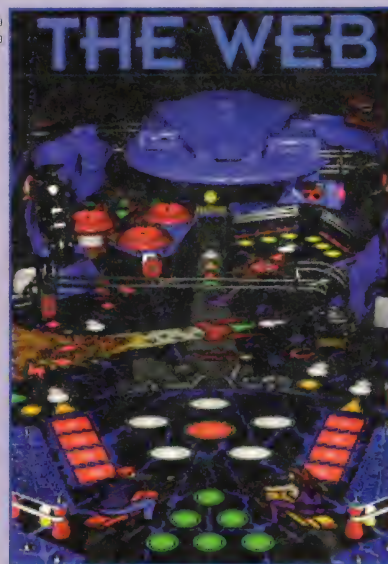
A Soviet *Hind* drops back to base to pick up soldiers. Whadya mean you lost the last platoon?

## Bargain Game of the Month:

### EMPIRE AWARD WINNERS BUNDLE - SCREAMER, STAR TREK TNG: A FINAL UNITY, PRO PINBALL: THE WEB, ACTUA SOCCER

What's the difference between Linford Christie and Empire? Well, they've both got large bundles but only Empire's is an award winner. Its new compilation boasts *Screamer*, a truly classy arcade driving game in the *Ridge Racer* mould, with SVGA graphics, six tracks, and a choice of cars. Then there's *Actua Soccer* – still one of the best-looking footie games around, with motion-captured players and commentary from Barry Davies. Sadly it's tricky to master the controls, so you'll probably end up playing like England on a bad day. From a leather ball to steel ones, *Pro Pinball: The Web* features six views of a rendered table, a rock soundtrack, and ray-traced silver balls that reflect the light. There are games within the game to play too, but the action is a little on the slow side. Finally, *Star Trek* fans can beam up to heaven with *A Final Unity*, which features voice-overs from the original actors and animated 3D scenes. On the downside, you're little more than an actor in what is a very linear episode indeed.

£29.99 • Empire • 0181 343 7337



Still one of the best in its class, *Pro Pinball: The Web* is just one of the games in Empire's Award Winners Bundle.

## THE LEGACY

Sneaking around a haunted New England house in search of ghosts and demonic gods sounds like the sort of atmospheric adventure that's tailor made for the PC. But while the monsters are nicely rendered and the sound scary, *The Legacy* is frustrating because it's far too easy to die. This game is old and poor. If moody mansions are up your street, try *Alone in the Dark* instead.



Tread carefully as you explore a haunted house in *The Legacy*. You never know what's around the next corner.

£4.99 • Regenerator  
0161 832 6633

## INDYCAR 2

The screech of tires, the blur of the grandstands as you shoot past, and the crunch of metal as you smash head-on into a concrete wall – *IndyCar 2* has all this because it's hyper realistic and very difficult to play. Unlike the rival *Formula 1 Grand Prix* games, there are no driving aids so the cars are tricky to master and you'll have to memorise every bend on its 15 circuits to stand a chance of winning. But if you like setting tyre pressures, aerofoil angles and shock absorber stiffnesses, you won't be taking a wrong turn by buying *IndyCar 2*.



Hey, that's me up there on TV! Watching the trackside screens could prove distracting in *IndyCar 2*.

£9.99 • Sierra Originals  
0118 920 9100



## FREE GAME: RED BARON

Sierra isn't asking for 10 of your English pounds for Red Baron, oh no siree. In fact, it's not even asking five, because you can download *Red Baron* – this test of flying skill and skullduggery free from Sierra's Web site. Of course, this 16 colour DOS game can't match the latest World War I flying sims like *Flying Corps*, but who's complaining when you pay mere pennies for a phone call? Very soon, *Flying Corps* will find itself in a dogfight with the upcoming *Red Baron II*. Check out the original classic and see just how far PC games have come.

<http://www.sierra.com/free/>



Shoot down enemy flying aces in *Red Baron*, the World War I flying game. For ultra realism, make sure you grow a silly moustache.

## TOP GUN

Designed solely for Tom Cruise to shoot down Russian fighter planes, pose in dark shades, and bed Kelly McGillis (in that order), *Top Gun* is one of the shallowest movies ever made. This gun-ho spirit is recreated in the game with the aid of video clips between missions, although you play the Cruise character, Maverick, and unfortunately McGillis is not involved. There is some compensation in that you can make some plane controls automatic, thereby diving straight into the action without having to learn a complex flight simulator. And a modem link is provided so you can shoot down a human pilot and brag about it afterwards.

£9.99 • Microprose  
01454 893 893



I counted them all out and I counted them all back. Can you land a jet on an aircraft carrier?

## SILENT THUNDER

*Silent Thunder* pitches you in the midst of war in South America, the Persian Gulf and Korea by constantly giving you places to fly and new targets to attack in your A10 plane. It's easy to fly and the 24 missions are fun because all you basically need to worry about is which weapons to carry. Both sounds and graphics are impressive, with explosions and smoke trails from incoming missiles adding to the tension. The texture-mapped landscapes look good too, but that's a good thing since you spend a good deal of time on low-level flying and avoiding dangerous dogfights.

£9.99 • Sierra Originals  
0118 920 9100



Fly an A10 in *Silent Thunder*, the simulator with 24 missions in different theatres of war, including the Persian Gulf.

## NHL 96

In moving from *NHL 95*'s VGA to SVGA graphics, *NHL 96* certainly sacrificed something in quality, with pictures that are chunky and blurred at times. Fortunately it's got lots of atmosphere – authentic crowd roaring, tannoy messages and music playing on the stadium's tinny PA. You can choose between several camera angles and see the players' reflections on the ice. While controlling them isn't the easiest of tasks, the nature of the game means it's not really a shortcoming. Slam bam, Uncle Sam – that's what ice hockey is all about, right down to vicious fights.

£11.99 • EA Classics  
01753 549 442



*NHL 96* puts you in the thick of ice hockey action without slamming your face against a hard wall.

## RETRO PERSPECTIVE

With *Actua Soccer* now available in the Empire Award Winners Bundle, we ask producer Tony Casson if Gremlin's classic still holds its own in the Premier League.

Are you proud of *Actua Soccer*?

Oh yes, certainly. I'm very proud of it because it was the first real arcade football game on which we used motion capture. There are obviously some things that we could have improved but we are addressing those in *Actua Soccer 2*.

But did *Actua Soccer* change PC games forever?

It brought motion capture to a lot of people and a lot of different software and proved that you could actually do a very good game using the motion capture system if done correctly. It opened the eyes of a lot of software houses – you only have to look at sports games out there now. Probably 85 per cent are actually using motion capture now so we must have done something right.

Would you do it differently today?

Probably yes for the development process, because we worked on the AI and the playability first, then we put in the motion capture. That meant that as soon as we put it in, all the AI and playability had to be rewritten. It was a learning process but we've learnt from the problems and the next series is going to be stunning.

What are you working on now?

I'm working on *Actua Soccer 2* which will be released for Christmas this year, and I'm also doing an *Actua* ice hockey game that will be released at the same time. Coming out very soon will be the Club Edition of *Actua Soccer*, and I'm also working on *Premier Manager 97*, a management soccer game.



Tony Casson scored a hit with *Actua Soccer*.





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# PLAY TO WIN

Want to thrash the pants off the competition? We bring you more top tips to beat up those bad guys.

## Command & Conquer: Red Alert

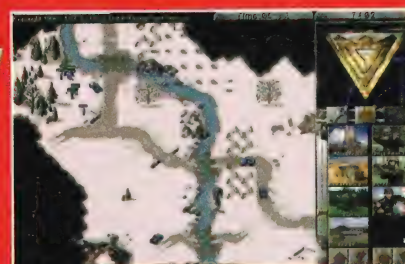


Old Joe Stalin knew the importance of waypoints for battlefield troops.

This excellent, undocumented feature in the game will enable you to set waypoints. You will be able to set complex paths for your helicopters, vehicles or troops to follow rather than sending them off in one straight line from A to B.

For instance you can send your helicopters on a route avoiding all SAM sites thus attacking a target without drawing any fire along the way. Alternatively, you could just send your troops on a scenic tour of the battle ground, visiting blown up enemy buildings and the charred remains of enemy flesh.

All you have to do to activate the waypoint feature is simply hold down the [q] key then mouseclick the points you want your selected operatives to pass on their journey.



Fed up with boring old A to B? Find a new route here.

## War Craft 2

Type these codes in during the game to kick some green Orc butt

<b>Valdez</b>	<b>she does</b>
Gives you 5000 oil	Enables full magic
<b>Make it so</b>	<b>It is a good day to die</b>
Speeds up training/building	Invincibility
<b>There can only be one</b>	<b>Deck me out</b>
Jumps to finale movie	Upgrades all technologies immediately
<b>On screen</b>	<b>Glittering Prizes</b>
Lights up the whole map	Adds gold and lumber to your resources
<b>Day</b>	<b>Unite the clans</b>
Makes grey area light	Instant victory
<b>Every little thing</b>	<b>You pitiful worm</b>
	Instant defeat

## NHL 97

Try these cheats for this very slick game. Initially type [Shift] + WAGD to enable cheats and then press these keys:

<b>[h]</b> Home team scores goal	<b>[SHIFT] +</b>
<b>[v]</b> Visiting team scores goal	<b>[t]</b> Makes players larger each time you hit it (shows when play stops)
<b>[p]</b> Ends period	<b>[1]</b> Two minute penalty is called
<b>[g]</b> Ends game	<b>[2]</b> Four minute penalty is called
<b>[o]</b> Goes to overtime	<b>[4]</b> Five minute penalty is called
<b>[i]</b> Causes an injury	<b>[5]</b> Penalty shot
<b>[f]</b> Causes a fight	
<b>[t]</b> Shrinks players each time you hit it (shows when play stops)	



Want to cause mindless violence on the ice? We show you how – the smart way.

## Blood – Shareware

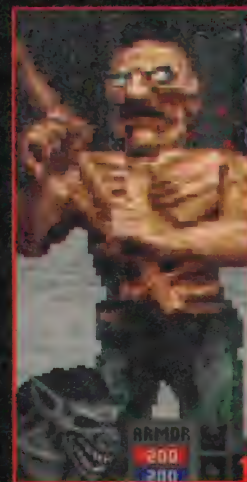
In your endless battles against Zombies, Gargoyles and Hell Hounds, running out of ammo just before a kill can be a heart-breaking moment, literally! To avoid any unnecessary future blood loss try these codes.

To use these cheats press [t] while playing and type them in.

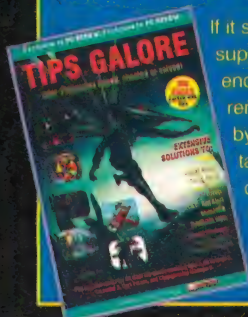
<b>Wanna be like Kevin</b>	Invincibility
<b>Spork</b>	200 Health
<b>Lara croft</b>	Full weapons and unlimited ammo
<b>Onering</b>	Invisibility
<b>Montana</b>	Gives you all inventory items
<b>Griswold</b>	Full armour
<b>Keymaster</b>	Gives you all of the keys
<b>Goonies</b>	Show entire map
<b>Spielberg</b>	Level warp
<b>Funky shoes</b>	Super jump
<b>Jojo</b>	Surreal mode
<b>Kevorkian</b>	Kill yourself
<b>Mcgee</b>	Self-sacrificion

If you haven't got Blood, you can get it from the Blood Web site at <http://www.blood.com>. See if the game matches its name.

Saved from a broken heart by being a super-cheat.



## AMAZING TIPS BOOK



If it seems we haven't supplied you with enough tips this month, remedy the situation by referring to the tip-tastic 100-page book covered with this issue of PC REVIEW.



## Die Hard Trilogy



Oh no, not another sequel. Cut the boredom by using a few sneaky cheats.

Are you hard enough for this game? Do you find endless battles with foreign terrorists get you down? Or are you just tired of seeing Bruce's square chin? If so then these cheats will improve your gaming fun quicker than you can say, 'Oh no, not another sequel.'

In the game (any of the 3 sub-games) push [Esc] to pause then hold down [r] + [2] and press the following keys to enable the cheats.

### Die Hard 1

Right, up, down, down, [e]: God mode

Right, [e], down, [o] For 50 Grenades, Smoke Bombs

Right, up, down, down, [e], right For guns (repeat for different guns)

### Die Hard 2

Right, up, down, [e] For guns, twice for god mode

Right, [e], left, [o], [a], down, [e] For heaps of missiles and grenades

### Die Hard 3

Left, [o], up, down, [e], right For unlimited lives

If you've typed the codes correctly the game will unpause with the stated cheats working.

For these next codes use the keys specified below to spell out the cheat codes listed lower down. It may take a while to get these cheats working, but it's well worth it.

### Letter

[r]  
[l]  
[d]  
[u]  
[x]  
[o]  
[e]  
[a]  
**Die Hard 1**  
**Rear**

**Rude**  
**Redo**  
**Reed**  
**Dead**

**10 [a]'s**  
**and 4 [r]'s**  
**Rudder**

**Die Hard 2**  
**Dare**  
**Lard**

**Rude**

**Dead**  
**Reload**

**Die Hard 3**  
**Eoxoelxl**

### Key

right arrow  
left arrow  
down arrow  
up arrow  
x key  
o key  
e key  
a key

Enemies with handguns shoot between their legs  
God mode  
50 grenades  
Fat mode  
Sacrifice to the gods

Skeleton mode  
Unlimited anything (Type it in once and you get the shotgun, twice you get P5, etc...)

God mode  
Aim only moves when you want it to move  
1 Time is any gun, 2 times is god mode  
Skeleton mode  
Lots of grenades and missiles

Knocks cars further back and sometimes flips them over

## Madden NFL 97

This is a delightful sequel to a superb American footy sim that just keeps getting better. Try these simple cheats to enable some new teams.

At the user records type Tiburon or Hiscore.



Cheat your way to some new opponents.

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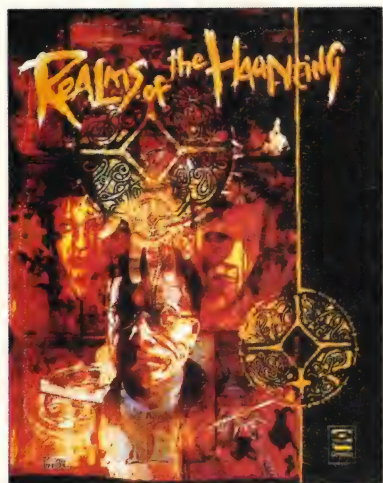
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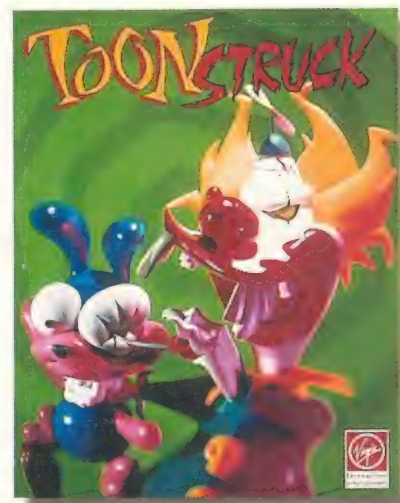
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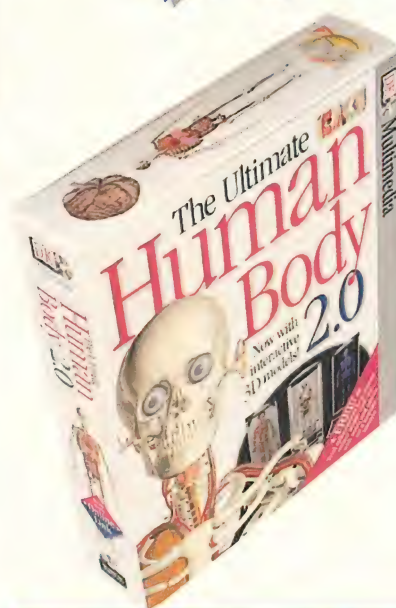
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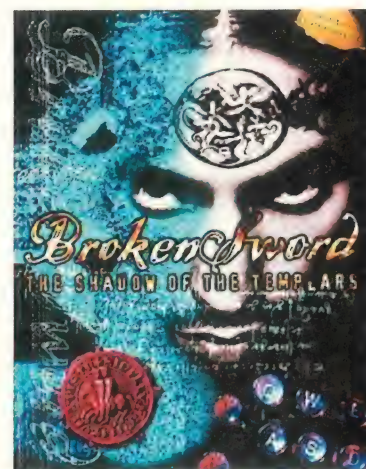
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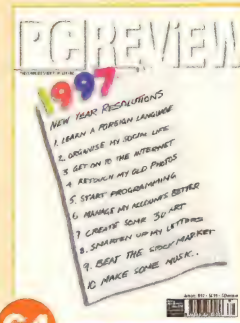
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# THEME HOSPITAL

It's got a theme! The theme is hospitals! It's Theme Hospital! Now you too can be a privatisation fat cat with these BMA approved tips.



The days of quite literally dashing doctors are here again, all thanks to Bullfrog's oddly titled Theme Hospital. Those crazy guys!



If we could hear what they were saying, I'm sure we'd be in for lots of amusing Doctor/Nurse banter. Maybe in the sequel, eh?



Avert your eyes - another patient is about to be carved up in the name of medicine. I only hope that chainsaw is clean.

**B**efore you start playing *Theme Hospital* it's a good idea to understand exactly what you're supposed to be doing.

The way your hospital works is quite simple: (1) Patients arrive (2) Their illness is diagnosed (3) They are cured. Of course, when you actually start playing, things get a bit more complicated, but once you've mastered the production line principle then you are pretty much sorted. With this in mind, let's examine the very first task at the start of each level: set out your hospital's basic design. Your hospital will have two main sections; a diagnosis section, and a treatment section. The diagnosis

section will consist of a reception area, GPs' Offices and General Diagnosis Rooms. The treatment area will contain rooms like Pharmacies, Operating Theatres, and specialised Clinics. Wards and Psychiatric rooms are both diagnosis and treatment rooms, and are 'special cases'.

Naturally, the best place to put the reception area is by the main entrance. Place the reception desk quite close to (and facing) the door. This will mean that your patients won't become confused and wander off in the wrong direction. Next you must build a GP's Office, preferably as close to reception as you can (so your patients can get there as quickly as

possible). The size of the office is down to personal preference. A larger office will make your doctor feel important and make him happier and more efficient, but a smaller office will obviously leave more room for other stuff. Whatever size you decide to make this office, make sure you build it connected to the wall of the building – rooms in the middle of the floor waste space and make planning future rooms and placing corridor items a bit tricky. Once you have completed the GP's Office, you must make a General Diagnosis Room – right next to it if you know what's good for you.

Now you can turn your attention to corridor items. Benches and radiators are the most important, and you'll have a few of both once you're done. Benches should be placed near the reception desk and the GP's Office – either in the middle of the floor or by the walls. Once these comfy green things are in place, why not place a drinks' machine or two tantalisingly close? Preferably so that when a patient sits down it's staring them right in the face. Drinks machines stop patients getting thirsty, and they are also extremely profitable when put in the right locations and not too numerous.

Radiators are a bit special. Place a radiator then have a look at the town plan – you'll see a scary red circle appear. This is the area which your new radiator has an effect on. By turning up the heat (remember, this costs money) you can make this area grow. This means that you can either

have a lot of radiators, or a large heating bill – the choice is yours! A cold hospital has a negative effect on both patients and staff, so make sure that wherever people are in your hospital there is a radiator keeping them warm. Another benefit to having a high temperature hospital is that your patients will buy more drinks. However, if people get too hot they will become just as irate as if the hospital was freezing. Check the Progress Report and Status screen to make sure everything is fine heat-wise.

Plants and Fire Extinguishers make everyone more happy, and Fire Extinguishers have the added bonus of delaying the time until your clapped out machines explode. However, plants require watering, which brings us neatly onto the issue of staffing your hospital.

At the start all you need are a few doctors (preferably the most qualified you can get), a receptionist, a caretaker, and a nurse (for when you get a Pharmacy). Once you have got these to help you in your medical enterprise, you're ready to roll – it's time to open the doors!

Once you have opened your hospital's doors (or simply run out of free time), patients will slowly start dripping in. Once they have been diagnosed it's time to build a room to do something about it. Pharmacies and Psychiatric rooms are available from the start, but the specialised clinics take time, and you'll just have to wait. However, even on the first level there is an exception to this rule –



Ah yes. A lovely bustling hospital. Notice the many and varied forms of disease that the staff here are attempting to cope with.





Putting Wards and Operating Theatres next to each other means your patients have a much better chance of survival after that crucial op.

Bloaty Head Disease. Once you've opened your hospital you should open this clinic straight away; sooner or later you're bound to have some large-headed gentlemen come to your hospital in search of relief. With the inflation machine, one of your doctors will be able to give it to them with the minimum of delay, and you'll be the proud receiver of quite a large and impressive packet.

Ailments that require a medicinal cure from the pharmacy section must be researched. To do this wait until a patient has been fully diagnosed, and click on them. From their information screen, click on the Casebook icon, and you will be taken to the cure screen, with that particular patient's problem already selected. Click the 'Concentrate Research' button and within a short amount of time your nurses should be able to mix them a potion to sort their illness out. The little number on the flask shows the medicine's chance of success – the more you research that specific disease, the higher that number rises, eventually hitting 100 per cent. The less patients you kill, the better, and having a 100 per cent success rate is very good.

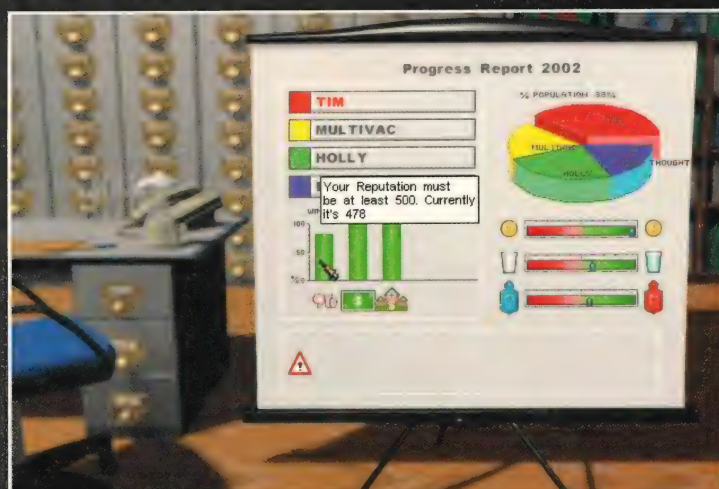
So, now you've got the basics of your hospital, and everything should be going swimmingly. As new illnesses are discovered you should be able to research the cures, build more rooms and employ more staff as needed. The first few levels are over quite quickly, but on the later ones there's more for you to worry about, especially staff-rooms and toilets. Toilets are good to

stop patients wetting themselves, which is unpleasant for everybody, not least the handymen who are required to clean it up. Left unchecked, a urine-soaked carpet could start a vomit session of epic proportions. Move your handymen in as quickly as possible by picking them up and dropping them on the offending messes.

Toilets are best placed near your reception area, but if you have an extremely large and spread-out hospital you would do well to have more than one. The same goes for staff rooms – the shorter the distance they have to travel for a rest the better, because it means they'll be back at their posts all the more quickly. As with all the other rooms in your hospital, toilets and staff rooms can be souped-up to make things even more pleasant for your staff and patients; if your docs are looking glum you can put a telly in their staff room to cheer them up.

After level one you get access to the research room, where you can tinker with the amount of time your researchers spend researching things. These levels can be fiddled with as needed, but if you really can't be bothered then you don't have to visit it at all. The same goes for the hospital policy screen. However, there is a rather cunning little trick available from this screen called 'Diagnosis Termination' where you can keep doing tests on a patient after you know what is wrong with them. Of course they still have to pay for the extra tests, unaware that you are exploiting their malady for short term financial gain. This tactic is only worth doing when you're really strapped for cash, though, as underhanded play of this kind won't do your reputation good.

Operating Theatres become important later on – they are expensive but they'll eventually make you a load of money. They require a couple of surgeons to work, though, and you'll need a ward near-by for you patients to recover. If you're having trouble



Checking the Progress Report and Status screen is a good idea. Not only does it tell you exactly how you're doing, but also if you're making any stupid mistakes.



Watch the queuing patients stare at the vending machine. Soon their spirits will snap, and they'll purchase an after can of over priced soda.

getting enough surgeons to staff your Operating Theatres then you'll need a Training Room to make one of your juniors into a skilled scalpel wielder.

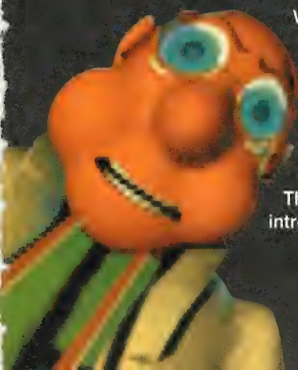
Once you've got everything up and running then all you need worry about is making sure that everything stays running smoothly, and eventually (putting maximum speed on might be a good idea now) you'll achieve your level targets and be offered an even more prestigious and well paid job. Here are some tiny tips to make sure you don't mess up:

- VIP visits are a good way of getting some free cash and improving your reputation. Only turn a VIP away if your hospital is in real trouble.
- Emergencies offer even bigger cash rewards, but unless you have enough treatment rooms for the casualties you won't get the big bonus for treating them all.
- Make sure you check all your treatment machines regularly. If one of them blows up you will end up having to fork out a load of extra dosh for a new room.
- Sending a tired doctor in to deal with a load of emergency patients is a very

bad idea as he'll only wander off halfway through.

- Taking out a loan at the beginning of the year gives you more time to pay it all back.
- It's better to have too many staff than too few. If you fire a vital highly trained doctor you may have difficulty getting someone similarly skilled later when you really need them.
- Buying extra buildings on later levels is expensive but often necessary. Make sure you use your hospital space efficiently to avoid having to build a whole extra building for just one clinic.
- If your doctors are unsure about how to cure a patient then it's probably better to send them away than have them die on you.
- Although most of the time your staff's request for pay increases are reasonable, they may try and sting you for a truly whopping sum. Punish them by immediately sacking them.
- Finally, as mentioned earlier, levels can take a very long time to complete, so putting the speed setting on the fastest possible is advisable. Good luck! (TC)

Whoa! If your ultimate nightmare is being ogled by a big rendered surgeon then you'd be better off not watching Theme Hospital's intro animation.





# ...THESE TWO HAVE GOT THEIR HANDS FULL



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## MULTI-MEDIA

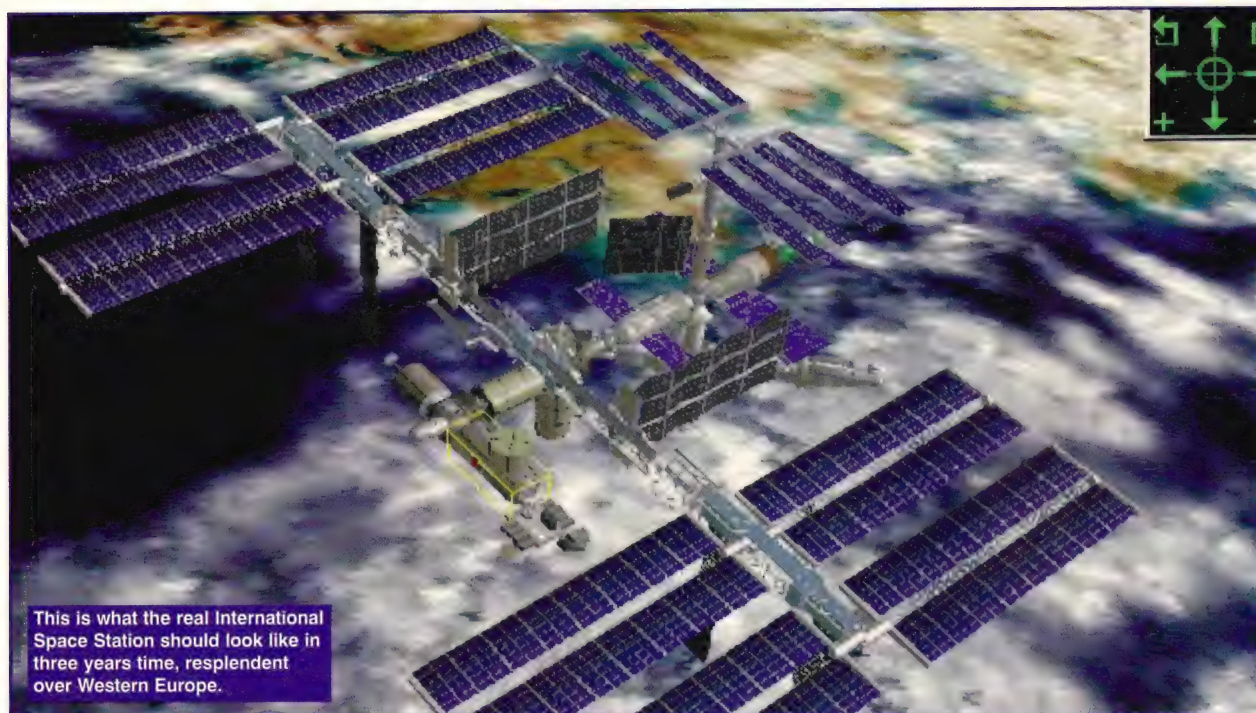


The great thing about virtual reality is that it gives you the chance to go places and do things that you would never normally be able to do. While VR on the humble PC can't yet match the realism of *Star Trek's* Holodeck, it is getting there. This month we tried three multimedia titles that take you to exotic locations. Starting on this page, we show you how you can blast into space and build an orbiting platform in Maris' *Space Station Simulator*. On page 77 you can dive the ocean depths on scientific expeditions in the *Sacred Mirror of Kofun*. Until time machines are invented, Emme's *Othello* is the next best thing to visiting 18th century Venice. Read our review on page 75. And then Dorling Kindersley simulate an underground cave in its geological reference title *Earth Quest* – see page 78. And the developers at DK have been working overtime this month because the company has also released its *BMA Family Health Encyclopaedia*. Check out page 76. You'll feel better for it!

Graham Southern  
Staff Writer  
gsouthern@futurenet

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This is what the real International Space Station should look like in three years time, resplendent over Western Europe.

# SPACE STATION SIMULATOR

It's space-age, and it's coded to take advantage of MMX technology. But will *Space Station Simulator* set a course for the stars, or splash-down somewhere near the Canaries?

Even compared to Knightsbridge or Belgravia, space is an expensive place. Just getting there in the Space Shuttle costs about \$450 million a time. You can only imagine what property prices must be like.

Of course, there isn't much real estate up there to be had. Not yet, anyway. But by the end of the year, or early next year at least, the Russians will have launched the first part of what will become the International Space Station. It won't have a Harrods or a Mosimans Restaurant around the corner, but it may turn out to be one of the most interesting places humans have ever inhabited.

However, the chances are that a \$450 million ticket is out of your price range. It's a good thing, then, that Maris Multimedia has come out with *Space Station Simulator*. Here's your chance to design, build and explore your own MMX-enhanced virtual version of the International Space Station using 3D graphical modules which are all based on the real thing. And at just under one ten millionth the price of a shuttle launch,

it would seem like good value. So let's take a look at the things you can do with *Space Station Simulator* and see if, indeed, good value is what you'll get...

## Step 1: Design

With its easy to understand point and click interface you could jump in and start



A launcher information screen details the different shuttles and rockets to be used. Here's the Russian shuttle, Buran. Last used in 1988, unmanned, there are no firm plans to use it

constructing a space station without knowing what each of its component modules is meant to do. However a better approach is to do a bit of research, carefully designing your little piece of real estate in the sky before you lay your hands on the bricks and mortar.

For this you'll want to refer to *Space Station Simulator's* Background section. Here you'll find descriptions and diagrams of the 40 or so modules available to you when you start building. Firstly, you can look at and rotate 3D models of each one. If you have a normal Pentium, the motion will look a jerky. If you have an MMX machine, it will be only slightly jerky, but jerky nonetheless.

You'll also be able to look at each bit of space hardware right up close, scrolling around a 2D image of it. For instance you can inspect the windows on the Russian living quarters segment, or the crinkly texture on the Japanese Experimental Facility. This time, thanks to MMX technology, your scrolling can be fast and smooth.

Otherwise, this feature is quite useless. There are no annotations to tell you what all ►





## DISTINCT PORTALS

You may be wondering what the key difference between a Russian space module and an American one is? Well, it's the doors. American modules all seem to have square hatches, while Russia's are all round. Hence, whenever you want to attach an American module to a Russian one you need a special hatch adapter segment. Why the two great nations couldn't agree on a single standard for space doorways is beyond us. Perhaps it's a make-work scheme thought up by IHAMU, the International Hatch Adapter Manufacturers Union. It's a moot point as to whether or not the different shaped doors serve any sort of ergonomic purpose.



Here's our first effort at constructing a space station, in orbit over Britain, with the US Shuttle docking.

the bits on the exterior of each object actually do.

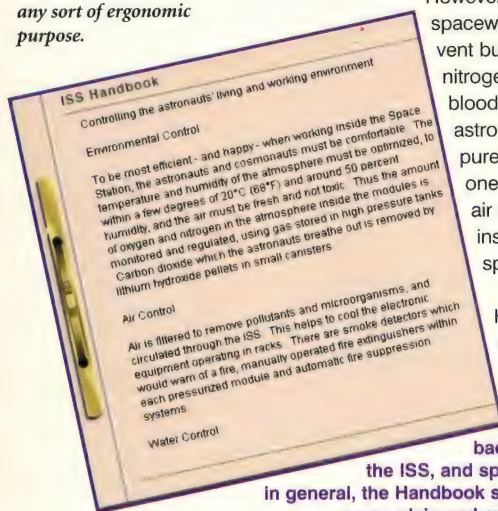
It's the text describing each object that's the most useful. Here's where you'll be told which countries are doing what for the project. And you'll learn all about what the International Space Station will actually be able to do. The Stage One Module, which is being constructed by the Russians as you read this, will be responsible for keeping the structure on the right orientation, in orbit, until the Service Module is added later on.

Meanwhile, in the Airlock entry you'll learn that the composition of the air in the Station will be the same as that on Earth: 20 per cent oxygen and 80 per cent nitrogen.

However, during spacewalks, to prevent bubbling of nitrogen in the blood (the Bends) astronauts get pure oxygen at one third normal air pressure inside their space suits.

However, one slight failing of the text is its propensity

For some background on the ISS, and space stations in general, the Handbook screen offers some plain and revealing text.



## The Real Thing: Step-by-step



Stage one of the International Space Station consists of this Russian module.



Two thirds in, six astronauts can live onboard and they can conduct up to 43 different experiments.



One third of the way to completion, the Station will look like this. At this stage three people can inhabit it.



Finished! Now there should be nine crew. Yet, there are only three spaces in the escape module. Oh dear.

to slip into NASA-speak. Those big, dark, shiny rectangles you see attached to satellites and space stations, you'll learn, are called 'photovoltaic arrays'. They'll be the main generators on the Station, with the starboard one alone pumping out 19 Kilowatts direct current. However the disc fails to clarify the basic fact; these 'photovoltaic' arrays are really just solar cells converting the sun's energy into electricity. Indeed, several parts of *Space Station Simulator* assume a level of prior knowledge. The lack of hypertext definitions for the tricky terms doesn't help.

### Step 2: Build

Once you've done enough background research to know which bits go where, it's time to build your Space Station. This is easy to do and enjoyable. Basically, you choose whatever module you want from the list, click

to display the points at which it can be attached to your structure. Then, if it's feasible, you add it.

Again, even though most of the sections look like nothing more than fancy floating buckets, you can rotate each one in 3D. Often you need to do this to locate all the adapter hatches.

Meanwhile, in a larger window you'll be able to see your grand structure floating above the Earth. Even if you haven't got a clue what you're doing, watching it grow is a joy. Click on any section and you'll be told what it is and just as each individual module can be manipulated in 3D, you can move your space maison around to your heart's content. Choosing the Spacewalk option is even more impressive. Now you can view the station in its full-screen glory, watching the cloud patterns and continents drift past

## Build High for Happiness

At some 200 miles above the surface of the Earth, the location offers perfect views and convenient access to the Moon



**1** Just like NASA and all their cronies, we have to start off with the Stage One module as provided by the Russians. With *Space Station Simulator* the Russians are never late, so we're away.



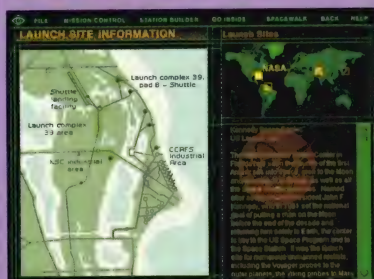
**2** Immediately, we add some US/Russian hatch adapters. The yellow and red bulbs indicate compatible nodes where we can add our chosen pieces of new hardware.



**3** So that people can live on our station immediately, we're now adding some US Habitation Units. Then we'll proceed to add Laboratories, Russian Habitation Units...



## Three, two, one...



The Launch Sites screen gives information on the four location from which ISS launches will take place.



There are photos, video clips of rockets blasting off, maps and textual details.

as the Earth below spins in real time.

When you grow tired of building, you can save your structure to hard disk and return to it later. Alternatively, if you get stuck, you can load up one of the 40 space stations from the CD-ROM. Each file represents the real International Space Station at a given stage in its construction.

### Step Three: Explore

Okay, so you've carved out your own little bit of heaven. Now it's time to explore it in virtual reality.

The VR itself is relatively impressive. If you have an MMX chip, you'll be able to scroll your view up, down and all around quite smoothly. Momentarily, some of the views do go blocky, but it's not a big problem. As you make your way around, you can go through hatches into other sections of the



Appropriately, the disc's main interface is called mission control. Here you can reposition your station over any part of the planet.



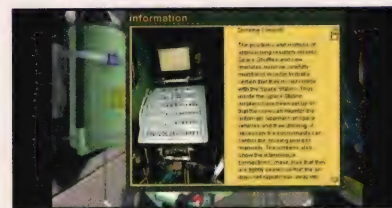
This is where the Russian cosmonauts would live. They must be out doing some experiments.

station, and rolling the mouse over certain objects indicates more to be learned.

Hence, in explore mode you'll learn about the Space Station's fire extinguishers. It even tells you about a small fire that occurred in the Mir Space Station earlier this year. Information is available on tools, control devices, sensory equipment, devices controlling the internal atmosphere and so on.

Though it's quite nice to get inside your structure, view it in 3D, and learn about all the important equipment within, exploring isn't really as interesting as it could be. Much of the interior is light grey, and although you can explore and call up information here and there, you can't actually do anything. Wherever you go, all you can hear is a dull droning noise. There are no astronauts or cosmonauts to meet on the station so after a while it starts to feel dull and uninspiring.

It shouldn't really. The International



Clicking on the consoles and other objects inside the station calls up information screens, like this one on the Docking Panel.

Space Station is the biggest space project ever embarked upon by mankind. It's symbolic of our ambition to step beyond the confines of this small planet. However once you've built one, actually getting inside it makes you feel as though you've entered some sort of sterile institution rather than the greatest feat of Earthling engineering. Then again, it's quite likely that's exactly what the real Space Station will be like, in which case the disc gets top marks for accuracy.

Space Station Simulator is absolutely full of information and, with MMX, it's visually impressive as well. These things represent good value. But, you could look at it another way. You can commission a Shuttle ride for \$450 million and discover that the Space Station's a pretty drab and dreary place. Or, you could get this disc, build your own station, and find out precisely the same thing. Now that's not such a difficult choice. (GW)

### STATION SPECS

When completed, the International Space Station will weigh in at about 400 tonnes and will stretch 100m in length. The project involves the space agencies of America, Russia, Canada, Japan and the European Union. Although the first module is under construction in Russia and was due for launch later this year, recent reports suggest that a \$100 million shortage of cash could delay this first stage by six months. Planned as a massive research centre in space, it will be bigger and better than Russia's current Mir station, or previous efforts like Soyuz and Skylab.

### WHAT'S A CHIBIS?

Amongst the strange objects you'll find on the Space Station is the Chibis. We gather this huge, odd-looking pair of trousers applies a reduced pressure to the lower half of an astronaut's body. By walking around in a Chibis with a belly full of water, astronauts are trained not to wet themselves in low gravity conditions.

### CD REVIEW

Try out the interactive demo of Space Station Simulator with CD REVIEW. Exclusive MMX code!

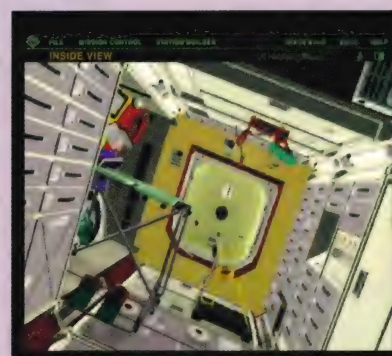
and Mars. Just the sort of place to lay the foundations of an International Space Station, PC REVIEW style...



4 ...Photovoltaic panels (or solar energy cells, as they're called on Earth) and an escape module – just in case – until our station looks like this.



5 Consulting the Station Report, we find we have a crew of 12, doing 26 experiments with an excess energy output of 2.9 kilowatts. All in just 10 payloads.



6 Time to Explore. The American living quarters. The interior design can best be described as functional – but that's space for you.

### DEVELOPER

Maris

### PUBLISHER

Maris

### CONTACT

01932 781108

### PRICE

£39.99

### MINIMUM SYSTEM

P75, 16Mb RAM, SVGA graphics card at 65,000 colours, quad speed CD drive, Win95

### PC REVIEW VERDICT

Top graphics and a wonderful use of MMX technology. Pity the Station's so dull inside.

8



If you could recognise all these  
some people would call you an anorak



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# OTHELLO

## THE INTERACTIVE GUIDE

More than you could possibly want to know about Shakespeare's *Othello*, plus a little about the bard himself.

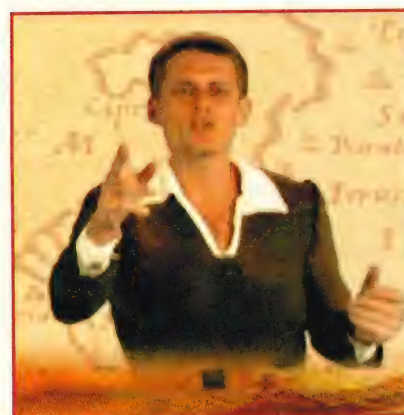
**U**nless you've already seen *Othello* on stage or screen, you'll find this CD-ROM fairly useless. Apart from a heavy-going synopsis, the Interactive Guide makes no attempt to explain the story of *Othello* to the uninitiated. Instead it offers a cross between a flimsy theatre programme and *Encarta 97*. But unlike a multimedia CD-ROM, you can read a programme before a performance (or at the least rustle up a makeshift fan). This disc is only really for those who love their *Othello*, and want to know it intimately.

Of course, many do. One of only four Shakespearean tragedies (alongside *King Lear*, *Macbeth* and *Hamlet*), *Othello* has been filmed over 20 times this century, most recently by Kenneth Branagh. The Interactive Guide comes squarely branded for Branagh fans. Its case even looks like a Video CD. But once you start exploring, you'll also find footage from other productions apart from Branagh's 1995 outing. It compares how different thespians have tackled the same harrowing scenes, and provides an insight into what 50s directors thought a black man looked like.

As well as the celluloid, the guide gets into the text. For instance, you'll learn that the next time your friends tell you "Prithee, keep up thy quillets", you shouldn't make a wise-crack about their corny Elizabethan

mannerisms. (They are, in fact, requesting that you stop joking altogether). Hypertext annotations soon demystify Shakespeare's rather odd grammar, though you might feel you're back in school. Considering Castlerock has already promised a disc for Branagh's upcoming epic *Hamlet*, a surprisingly large portion of the disc is dedicated to the bard himself. Born into middle-class Stratford-upon-Avon in 1564, Shakespeare is a legend surrounded by myth, most of which the disc explains away in an unconvincing and woolly way.

Dismissing claims that Shakespeare must have travelled to be such an expert on sea-faring with the revelation that Britain is an island, it then explains that only class jealousy could fuel the argument that Shakespeare was a nobleman. This despite 400 years of scholarly debate. Indeed, much of the text reads like a decent American high-school project. It's informative, but glib.



This flowery young thespian acts as your guide. Here he's caught in a rare moment of manliness.

Of all his plays, Shakespeare's only original work was *The Tempest*.

There's nothing inherently wrong with this. Originality was not highly prized among Renaissance audiences, and an artist's skill was to interpret rather than invent. Equally, there's nothing particularly original about *Othello, the Interactive Guide*. True, the latest multimedia techniques like 360 degree scrolling images and an online connection ensure it's the most up-to-date companion yet. But at £24.99, it's a pricey and unsensational after-film treat. (OB)



Here's Sir Lawrence Olivier disguised as Othello. Give it up Kenneth, you'll never match such a silky chameleon.



The Guide looks into Venice and Cyprus in Shakespeare's day. Apparently, he set his plays abroad to avoid political persecution.



One of the virtual tours takes you inside the new Globe Theatre in London. 360 degrees scrolling brings the scene to life.

### KNOW YOUR SHAKESPEARE?

If you think *Othello*'s a board-game, prepare for the worst...



This is the house where Shakespeare's wife lived before marriage. What was her name?



What was the name of this theatre, where most of Shakespeare's plays were first staged?



The Turks were in the ascendant when *Othello* kicked them out of Cyprus. What the name of their Empire?

### ANSWERS:

1. Anne Hathaway.
2. The Ottoman Empire.
3. The Globe.

**DEVELOPER**  
Castlerock Entertainment  
**PUBLISHER**  
EMME Interactive  
**PRICE**  
£29.99  
**CONTACT**  
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Windows 3.1 and 95

**PC REVIEW VERDICT**  
A merely competent guide that fails to excite. Good on Shakespeare as well as *Othello*.

6



Answer this *Othello* quiz correctly and you'll uncover Branagh. Since you've unlimited guesses to hand, there's no escaping fate.





### SCANNERS

Magnetic Resonance Imaging (MRI) uses a computer to construct images of the body. The patient sits inside a huge magnet, which arranges some of the body's atoms in a regular pattern. Radio waves are then passed through the body, briefly nudging the atoms' nuclei out of alignment. As they return to their starting positions, they emit radio signals which are detected by the machine and analysed.

# BMA

## FAMILY HEALTH ENCYCLOPEDIA

**Dem bones, dem bones, dem dry bones... whatever your ailment, a dose of Dorling Kindersley is just what the doctor ordered.**



Ever wondered what to do in an accident or emergency? Clear advice from BMA tells you how to help someone in trouble.

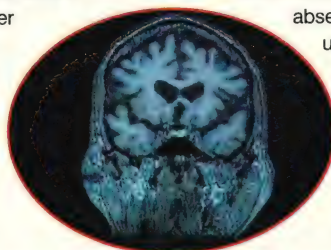
**H**ave you suddenly started feeling confused in the last few hours? Does this coincide with a recent blow to the head? If so, you should drop this magazine right away and head for the nearest hospital. You may not have a brain injury but you can't be too careful because the amount of tissue damaged inside could be much larger than the external wound.

Fortunately, only one per cent of head injuries are severe enough to leave someone mentally disabled, according to Dorling Kindersley's *BMA Family Health Encyclopedia*. Written by GPs and edited by Dr Tony Smith of the *British Medical Journal*, it's ideal for an authoritative view on what's wrong with you. It contains an A-Z list of

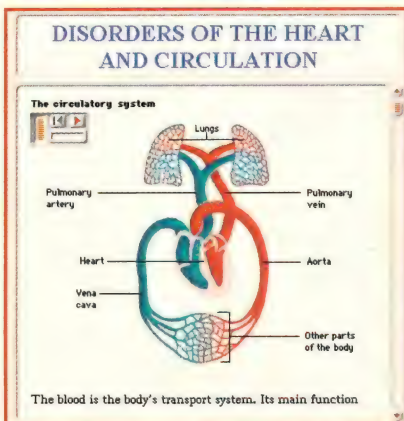
symptoms, plus self-diagnosis charts on which you answer yes or no to each question until you arrive at the likely cause of pain. Alternatively you can click on a particular area of the body – there are diagrams for men, women and children – to come up with possible problems for each organ.

For worse injuries that occur as a result of accidents and emergencies, from

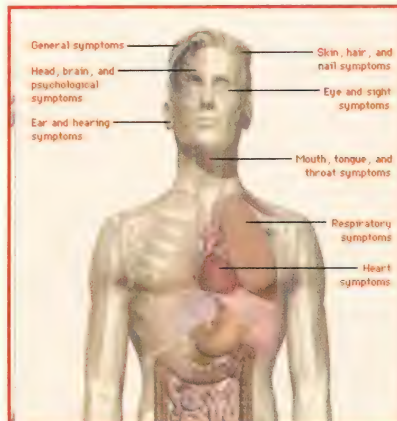
absence of breathing to unconsciousness, there's advice and diagrams showing how you should help. For example, a person who has succumbed to heatstroke should be wrapped in a wet sheet or sponged down with cold water. Then you should blow them with air from an electric fan, and place their body in the so-called



**Brain scanning in operation. Six other videos cover different methods of diagnostic imaging, from Angiography to Radioisotope scanning.**



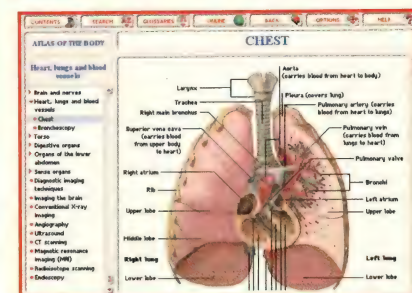
This animation shows how the circulatory system works. It's accompanied by text and audio commentary.



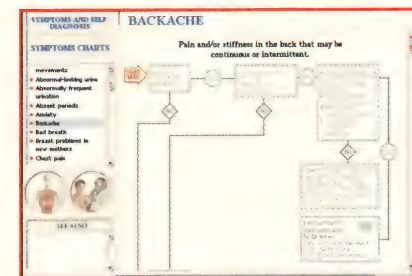
If you're having trouble hearing, click on the ear to see a list of possible potential symptoms.



The BMA Family Health Encyclopedia gives you helpful hints for a healthy lifestyle, plus reference material on a whole range of diseases.



Ever wondered where the Pulmonary vein was? Annotated illustrations in BMA's Atlas of the Body will help you find it.



Symptoms charts help you find out why you're ill. Answer yes or no to each question until you arrive at a probable cause.

recovery position when they feel cooler.

Caring for others isn't just a matter of helping them when they're involved in an accident. There are lots of other things mentioned in the *Encyclopedia* that will help you live a healthier and more active life. Regular exercise helps prevent coronary heart disease, and there's growing evidence that vegetables, fruits and cereal foods may help against chronic diseases like cancer, heart disorder and strokes.

Diseases and disorders are covered comprehensively by a textbook-style section, and there's also an atlas of the body with organs labelled in annotated diagrams. If something does go wrong, it's likely doctors will use X-rays or endoscopy to examine your innards. If you're worried by the prospect, at least you can see what they'll do to you by watching BMA's video clips.

There are plenty more animations on the disc – around 60 in total – but sometimes the choice is a little odd. For example, a demonstration of first aid might have been more useful than a clip of birthmarks being removed by laser surgery. But on the whole they're useful, and the glossary of drugs makes BMA a potentially life-saving reference work. (GS)

**DEVELOPER**  
Dorling Kindersley  
**PUBLISHER**  
Dorling Kindersley  
**CONTACT**  
0171 753 3488  
**PRICE**  
£39.99  
**MINIMUM SYSTEM**  
486DX, 8Mb RAM,  
Double speed CD drive  
Windows 3.1 or 95

Comprehensive information on illness and disease gives BMA a clean bill of health.

PC REVIEW VERDICT

8





# THE SACRED MIRROR OF KOFUN

Don your wet suit and dive into an underwater environmental adventure. You'll meet manta rays, trigger fish, and a fella named Cousteau.

**D**eep in the ocean depths, all is peaceful. Coral and sponges carpet the sea bed and occasionally a colourful clownfish flits by. Suddenly, a manta ray sweeps in front, flapping its large wing-like fins as it moves by, almost oblivious to the lone diver's presence.

That diver is you, and you're here to explore the ocean surface off the Micronesian island of Palau in the centre of the Pacific, just above the Equator. It's all part of *The Sacred Mirror of Kofun*, an adventure game that in truth is more of an environmental exposition. The diving footage for the disc was filmed by French TV producer Jean-Michel Cousteau, son of legendary underwater explorer and environmentalist Jacques.

*Kofun* isn't just about diving. The mirror of the title is a missing artefact with legendary powers that the fictional World Heritage Foundation want you to retrieve. But while that may be the eventual aim, it's more of a slip road on the

motorway of environmental awareness.

Your first task is to search a number of potential sites on the sea bed off the island of Palau that might be a suitable site for a research station. Its aim is to study the impact of humankind on the coral reefs, so you're looking for a place with the greatest biological diversity – in effect, the one with the most fish, coral and crabs. When you've taken pictures with your underwater camera, you return to the good ship *Antares* where they're analysed by a biologist.

From time to time you're given another mission, like a call from the fictional International Scientific Committee. One such alert takes you to a pipe discharging raw sewage onto the sea bed which is destroying the coral.

Jean-Michel pops up to explain that sewage is rich in organic matter, which causes a proliferation of algae. As algae smothers the coral, that's very bad news indeed. "We must protest!" proclaims Jean-Michel.



Jean-Michel's Encyclopedia is the perfect place to find technical tips on scuba diving and other nautical pursuits.



Jean Michel Cousteau's Encyclopedia of the Sea is accessible from the ship's computer. It's packed with scientific info, like this entry on biodiversity.

While his outburst conjures an image of French submarine drivers forming underwater blockades, he's actually talking about the more civil action of sending a message.

Jean-Michel isn't the world's best actor, or even France's for that matter, but it's his *Encyclopedia of the Sea* that makes *Kofun* worth a second glance. Accessible from the ship's computer, it contains a wealth of information on marine life, including sea snakes, triggerfish, and the scary-looking but mostly harmless moray eels. There are also comprehensive sections devoted to ecology, scuba diving and marine fauna.

As a game *Kofun* may not be terribly gripping, but it's certainly a fun way to learn about the underwater environment. (GS)



Here's one Greenpeace missed – an underwater pipe pumps raw sewage into the sea, killing the coral. Tsk!



Jean-Michel Cousteau gives the orders in *The Sacred Mirror of Kofun*, then disappears and leaves it up to you.

## THE CORAL WARS

*Underwater animals fight for survival just like creatures on land. The difference is that coral and sponges cannot move, so they've developed weapons to attack from a distance. Corals unleash mini harpoons with a sting in the tale called the cnidocyst. But sponges top this with chemical weapons, secreting acid to kill polyps which make up the coral. They may be simple creatures, but they fight fierce territorial battles.*



Biologist Luciana Capucci analyses the photographs you bring back from the ocean floor to help you find a site for the research station.



Mounted on the front of your submarine is the camera used to snap potential research sites in the Pacific.

**DEVELOPER**  
Future Concept &  
Jean-Michel Cousteau  
Productions  
**PUBLISHER**  
Emme Interactive  
**CONTACT**  
00 33 1 45 61 54 30  
**PRICE**  
£34.99  
**MINIMUM SYSTEM**  
486DX/33, 8Mb RAM,  
8Mb hard disk, double  
speed CD-ROM  
Windows 3.1 or 95

**PC REVIEW VERDICT**  
Interesting concept that's more scientific exploration than pure entertainment.

7



# EYEWITNESS VIRTUAL REALITY EARTH QUEST

Queuing in the Post Office seems quick compared to geological time. But join *Earth Quest* to see minerals form before your very eyes.

## THE WORLD'S LONGEST QUAKE

The longest earthquake in history took place in Anchorage, Alaska, in 1964. It shook the ground for four minutes and measured 8.6 on the Richter scale. It caused extensive damage, smashing houses, cracking roads, and raising the ground by as much as 12m in places. During the next 18 months, Alaska was hit by 10,000 smaller aftershocks.



Erosion causes all different formations, from rolling hills to rugged canyons. Click the buttons to see new landscapes.



In the main cavern you'll find cases holding rocks, minerals, and crystals. That impressive-looking gem holds some priceless stones.

Every once in a while, the Earth springs a nasty surprise and there's very little we can do about it. For example, one February day in 1943, a cinder volcano suddenly appeared in a Mexican cornfield. By the next day, it had grown to 424m in height and erupted, burying nearby villages and towns under ash and lava. It didn't stop for another nine years.

Such awesome power not only makes volcanoes one of the most deadly natural phenomena, but also an enduringly fascinating area of science. They're also hot subjects for disaster movies, like the recent effects-laden blockbuster *Dante's Peak*. So it's particularly exciting when you get to start

your own volcano in Dorling Kindersley's new *Eyewitness Earth Quest*, an interactive exploration of rocks, minerals and crystals. Simply tweak the dials to alter the volume and stickiness of molten rock, press the Erupt button, and watch her blow in a 3D animation...or not, depending on whether you've added enough gas.

There's no better way of learning how volcanoes form than building your own, an approach that brings to mind the very best interactive museum exhibits. That's no real surprise because *Earth Quest* is published in association with London's Natural History Museum, which recently opened a new state-of-the-art Earth Gallery devoted to all

things geological. *Earth Quest*'s virtual museum is housed in an underground cavern which contains 30 consoles in four main sections. As you wander around, a geological clock ticks by, occasionally alerting you to an event such as the formation of Aragonite. Locate it on the map and you'll see the crystal growing before your eyes.

But there's more to *Earth Quest* than mining its rich resources of 600 pictures, 50 animations and 13 videos. The quest of the title involves tackling a geological quiz, in which you gain a tectonic plate for every three correct answers. It'll take a while to find the solutions somewhere in the museum, and collect the relevant chunks of crystal. Eventually you'll have assembled all 27 plates, which enables you to learn more about the Earth's core.

When you've finished exploring, you won't be surprised that even this virtual museum has a souvenir shop. However, it's rather refreshing that everything in its range of posters, writing paper, and postcards is free – simply save them to your hard disk and print them out. Features like this make *Earth Quest* ideal for children aged eight or more, or indeed anyone interested in learning the basics of geology. (GS)

## DEVELOPER

Dorling Kindersley Multimedia

## PUBLISHER

Dorling Kindersley Multimedia

## CONTACT

0171 753 3488

## PRICE

£29.99

## MINIMUM SYSTEM

486DX, 8Mb RAM, Double speed CD drive, Windows 3.1 or 95

A fun introduction to geology, *Earth Quest* is a gem of a disc.

PC REVIEW VERDICT



*Earth Quest* is housed in a virtual reality museum, with rooms devoted mining, earthquakes and volcanos, and geological history.



The citizens of this city better run for their lives. Measuring eight on the Richter scale, this earthquake's bound to be a big one.



# BLOWING AWAY THE COMPETITION



# G-NOME

G-NOME pushes real-time 3-D simulation over the edge. Experience the terror of being chased on foot by a four-storey HAWC. Feel the adrenaline rush as you turn and face the armoured giant.

MULTI-PLAYER, MODEM, NETWORK & INTERNET READY!

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(keyword: SEVENTH) or the web ([www.7thlevel.com](http://www.7thlevel.com))

**7th LEVEL**



# Would you like to feel deeply relaxed yet fully alert in just 7½ minutes?

Tune in and turn on to shut out everyday pressures – and unleash the natural resources of your mind – writes Chris Payne

**D**azzling patterns of colour swirled in front of my closed eyes, and gyrating shapes soared across my visual field as hypnotic rhythmic tones caressed my ears.

All I'd done was put on the liteframes and headphones, pressed a few buttons on the MindLab's compact console and lay back with my eyes closed.

As the patterns and sounds slowed down I felt my mind sink deeper and deeper, and it seemed as if I was rolling back through space.

## Clear your mind in minutes

Seven and a half minutes later I re-emerged – relaxed, alert and with no mind chatter. The serene state lasted for the next two hours. This was my first experience of using the remarkable MindLab.

It may at first sound like a way out Spielberg creation, but the MindLab mind machine is far from science fiction. This is science fact, tried and tested to help you cope with life's stresses and strains.

Using light and sound patterns matched to your own natural rhythm, the machine can induce a state of relaxation, and even aid learning.

Far from being futuristic, the MindLab is based on ancient techniques blended with sophisticated technology.

In 2000BC Ptolemy noted that sunlight flickering through the spokes of a rotating wheel caused fascinating visual patterns and a feeling of euphoria.

## UK research validates the technology

Then in the late 1940s a British neuroscientist, W. Gray Walter, measured the effects of an electronic strobe using an EEG, which monitors brainwave activity.

He found that rhythmic, flashing lights altered activity across the whole cortex, producing trance-like states of profound relaxation and vivid imagery.

Since then, a series of independent studies have confirmed Walter's findings. Research now suggests that machines using light and sound can dramatically reduce stress.

## Change mental states easily

Benefits include deep relaxation within minutes, improved learning ability and enjoyment of music, increased alertness, enhanced ability to visualise new goals, and better sleep at night.

The user of the MindLab chooses the state of consciousness that he or she wishes to obtain, and is lulled by a rainbow array of colours and rhythms into the chosen state of awareness.

Just press a few buttons and you can choose to relax, sleep, visualise, energise or learn. Lie back, close your eyes and let the kaleidoscopic light patterns and rhythmic tones gradually shift your consciousness.

## The MindLab grows with you!

The MindLab is infinitely expandable too. Users can play through the MindLab cassette tapes or CDs with special sounds at the beginning of each track. These tones reprogramme the MindLab so that the hypnotic lights synchronise perfectly with the relaxing music which follows, or with the voice of a qualified hypnotherapist as he helps you to create changes in your behaviour.

## Rave reviews in the press

"The systems reliably produce visual effects and relaxation... the experience resembles the closing sequences of 2001: A Space Odyssey."

– *New Scientist*

"The MindLab produces a feeling of total inner calm where once there was chaos. The technology of tomorrow really is with us today."

– *Fit Body magazine*

"The MindLab has received rave reviews from both the scientific community and the public... After a few minutes the dazzling spectacle winds down into a deeper state of consciousness."

– *New Scotsman*

"The machine really does need to be experienced to be believed."

– *Computer Life*

"The MindLab gives you hundreds of different methods, via amazing sounds, music and light displays, of achieving Nirvana."

– *London Evening Standard*

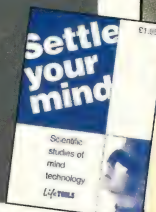
"The MindLab really works!"

– *Ms London*

Find out why thousands of people in the UK and one million worldwide are using this technology – ring 01625 502602 for your FREE brochure TODAY!

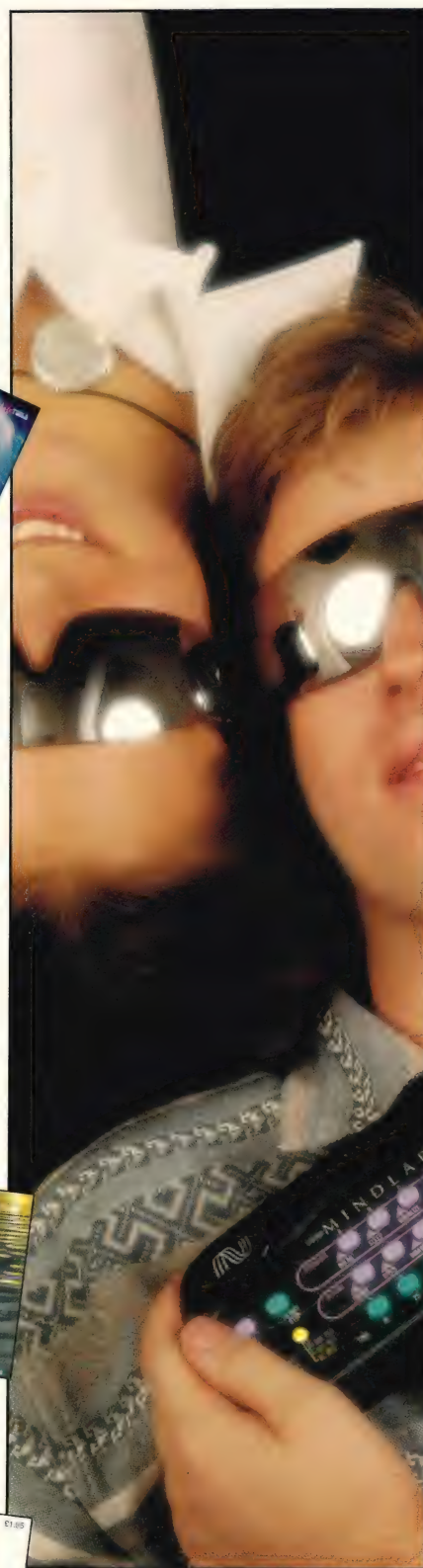
## Settle your mind!

We'll also send you, FREE OF CHARGE, a report worth £1.95 detailing the fascinating results from scientific research of all our mind machines.



**LifeTOOLS**

Freeport SK1852,  
Macclesfield SK10 2YE  
Tel: 01625 502602  
(manned 24 hours, 7 days a week)



Yes! Please send me a FREE MindLab brochure and report worth £1.95.

Name

Address

Postcode

Home tel. no.





## THE WORKS



A stack of goodies awaits you in this month's Works. It kicks off with the ultimate integrated packages. When a word processor is no longer all that you need and taking that step up to an integrated office program seems daunting, we guide you to a purchase by looking at five options. Top of the Works' pops this month is Snappy – a cheaper alternative to digital cameras and much more versatile. Avoiding the expense whilst maintaining the quality seems to be a recurrent theme this month. As usual The Works has something for everyone – including innovations for musicians and TV addicts – so feast your eyes and get stuck in...

Mat Broomfield  
Technical Editor  
pcreview@futurenet.co.uk

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# A BAG OF SUITES

**Word processors, databases and spreadsheets all rolled up in one suite. But which integrated package is best?**

**W**hat exactly do you need your integrated suite to do? Well before buying, read this, as we pick out five leading suites and look at what each one offers for the money.

### Word processing

Probably the single most important application in your suite will be word processing. A spellchecker and a thesaurus can almost be taken for granted. You might want a grammar-checker, too. These claim to watch for style, punctuation faults and general legibility. *Word 97* checks your style as you write, underlining dodgy-sounding sentences in green. But all of this is just adding the final gloss. If you're working on something substantial you need to get your ideas sorted out before you start.

That's where you need outlining – one of the most under-rated of all word processor features. An outline is like a directory structure on your PC. Imagine a single folder given the name of your document. Inside that folder there will be a series of other folders containing the different sections of your document. And within these folders there may well be further folders... it's the

most logical way there is to organise a hard disk, and it works just as well when you're organising your ideas.

You will probably want your words to look right on the page. All these programs allow multiple columns, graphics and all the tools you need to create quite sophisticated DTP-style layouts.

If you're interested in Web publishing, then you should look for word processors that can export HTML files. The clever ones will be able to display a reasonably accurate on-screen representation of what your Web page will look like, and the really clever models will convert your graphics to GIFs and JPEGs automatically.

### Storing data

There are two types of database program: flat-file (often called 'card index-style' or 'non-relational') and relational.

Flat-file databases are simple, straightforward, easy to use and yet still capable of just about any home and light business task. However, they can't fetch data from other database files, or even from other records in the same file, so you can't set up flexible networks of interrelated information – for this

you need a relational database. But these are big and generally unfriendly, and to get the best out of them is going to take a lot of brain-work and probably a bit of scripting (lightweight programming) too.

If you want to catalogue all your CDs, a flat-file database is perfect. If you want to track employee details, stock inventories and client billing information for a medium-sized company, you need a relational database.

### Spreadsheets

All spreadsheets work the same way – you either type a number into a cell, or insert a formula that fetches numbers from other cells, calculates the result and displays that. All this is done on vast grids of rows and columns, and formulae work using cell references (row and column numbers) to fetch the numbers they work on.

More expensive, professional spreadsheets can work in 3D. With this you get lots of spreadsheets stacked in layers, one behind the other. You reach each layer by clicking on its tab at the bottom of the window, and you can get formulae to refer to cells on other layers, not just the current one. This lets you build more complicated



## INTEGRATED OR SUITE?

We've reviewed two types of package here. Integrated packages like Microsoft Works and ClarisWorks are single programs that can create a variety of different types of files, word processor documents, graphics, spreadsheets and databases. Office suites, by contrast, are collections of individual, self-contained applications which have been adapted to look and feel part of a family and to work together, with many linking features and tools. Integrated packages are, not surprisingly, better and more neatly integrated. They also take up less RAM than two or more 'suite' programs running simultaneously. Bear this in mind when checking out the Min System configurations – all of the 'integrated' programs' functions will work in 8Mb of RAM, while you'll be lucky to get more than one of the 'suite' programs to run simultaneously in that amount of memory.

spreadsheets. You might also get pivot tables and other gadgets for quickly summarising data. There's generally a wider range of scientific and statistical functions for extra-complex formulae and calculations, too, plus more sophisticated analysis tools.

For home and light office use, all of this is pretty irrelevant. The tools and functions available in even the most modest integrated programs are enough.

## Graphics

Interestingly these suites don't go in for graphics software. You'll usually get a half-decent (only half-decent mind) set of drawing tools, but seldom a worthwhile painting package. This shows that they are designed for office use only.

If graphics and design are important to you, choose your suite carefully; the most expensive isn't necessarily the best. Both MS Works and ClarisWorks packages are designed for home and office use, and are rather more flexible than the more expensive office-based suites.

## Presentations

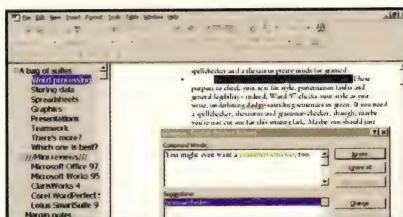
If you ever need to make serious presentations you'll need another part to your suite. Presentations are usually on-screen affairs, and consist of a series of slides which feature text, graphics, bullet points, movies and any other devices you think might get your point across. This type of software varies quite considerably. In some programs a presentation may be no more than a series of static screens which will run in sequence with set delays, in others it can incorporate animations, transitions, fade effects and interactivity to

become more like an multimedia experience than simply a succession of pages. Of course this type of presentation requires work so the software you need has to make it both possible and easy.

## Teamwork

In business, teamwork, or Workgroups, can be important, too. Many of us use desktop PCs as isolated workstations.

But if you're working in a high-powered environment with high-powered software and a high-powered network, you can do better than that. You can email reports for others to



Microsoft Word 97 – not just a word processor.

examine, add notes and observations to and then return to you, again via email. You can put out draft versions of your presentations for others to add to or comment on. You can even use networked personal organiser software to arrange meetings when all the necessary parties are free.

These workgrouping features account for a good proportion of your 'professional' suite's complexity, cost and general unfathomability. If you don't need it, it'll cost you time, money and brain cells.

## There's more?

Computers are good at storing names, addresses, phone numbers and diary details

and organiser software is a good way of keeping everything under control.

The latest generation of programs also supports email as well as workgroup scheduling – imagine how useful it would be to be able to check your co-workers' diaries on-screen when planning meetings. The software also includes public and private data categories, though, so it won't be easy to check their phone lists or personal jottings.

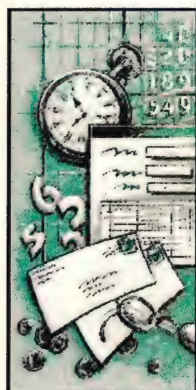
If you're looking for software to use at home, these organiser programs are still useful. It all depends on how busy your life is, how conscientiously you're going to keep your computerised records up to date and whether you want your information available all the time or only when you're at your PC.

## Which one is best?

For a start, more is not necessarily better. Don't make the mistake of assuming that a bigger, more expensive suite is a better one. The only reason for buying a professional suite is for the professional applications it contains. If much of your job revolves around writing reports or technical documents, a professional word processor like Word or WordPerfect will start to earn its keep. If you're a professional accountant or work in your company's finance/accounting department, Excel might be the only spreadsheet program that will cut it. If you control your company's stock/inventorying/customer billing/payroll system, you need a relational database like Paradox or Access.

But if you're looking for straightforward do-it-all software, the Works programs – Microsoft Works 95 and ClarisWorks 4 – are better. Not just cheaper, but better. (RL)

# Microsoft Office 97/Office 97 Pro



WordArt is a kind of Microsoft mini-application that enables you to do weird and wacky things with headings, some of them pretty effective.

Office 97 Standard consists of Word 97, Excel 97, PowerPoint 97 and Outlook 97. If you want a database application (although Excel 97 makes a pretty handy database itself), you have to pay extra for the Pro version, which contains Access 97, a seriously powerful relational database.

Microsoft Word has the reputation of being the world's biggest and best word-processor. It certainly has a bone-crunching feature set, and the 97 version can now check your spelling and grammar in real-time. It also has a highly-developed outlining

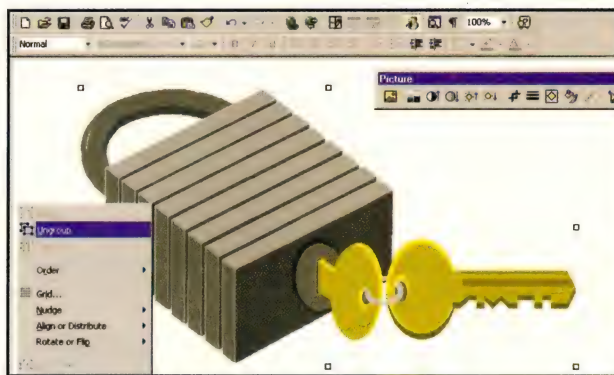
system that helps you navigate through long documents via a Document Map. The drawing tools are improved, and are now standard throughout the applications in the suite, but there's still no separate drawing application or paint program.

PowerPoint 97 enables you to export your presentations as Web pages, and Excel

97 and Access 97 have had a round of interface enhancements and other tweaks too. And the rather matronly Schedule+ organiser has been replaced by Outlook 97, which also handles e-mail, group scheduling and more.

Office 97 consists of the biggest, hardest and most industry-standard professional applications you can get. They're also complicated and daunting, like the rest of the office-based heavyweights reviewed here. If professional power and compatibility is important, Office 97 is the suite to go for.

Office 97 has much-improved drawing tools common to all its applications but no dedicated paint or image-manipulation software.



DEVELOPER	PUBLISHER	CONTACT	PRICE	MINIMUM SYSTEM
Microsoft	Microsoft	0345 002000	£475.21 /£615.58	486, 8Mb (12Mb for Access), 73Mb hard disk, CD drive, Win95

The best-integrated, best looking and basically best office suite.

# 8



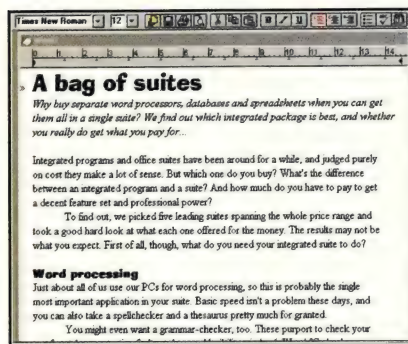


# Microsoft Works 95

This is one of the few programs still available in a Windows 3.1 version (Version 3.0) even though the Windows 95 version has been out for a while. It's not a bad integrated application, either, although *ClarisWorks* edges it out in just about every category.

The word processor is clean and uncluttered, but it doesn't have the outlining tools or style sheets you get with *ClarisWorks*.

The database and spreadsheet modules are decent enough, though, and on a par with those you get in *ClarisWorks*, although the *Claris* program gives you more database layout options.



Microsoft Works' word processor might not have all the bells and whistles of the professional applications reviewed here, but its clean simplicity can make a welcome change.

Sheet1						
	A	B	C	D	E	F
1						PRICE LIST
2						
3						
4				YOUR COMPANY NAME		
5				Address (first line)		
6				Address (second line)		
7				City, Postal Code, County		
8				Phone Number		
9				Fax Number		
10						
11						
12		Effective Date:	From: Start Date	To: End Date		
13		Please indicate stock numbers when ordering.				
14		STOCK NO.		DESCRIPTION	UNITS PER PACK	PRICE PER UNIT
15		3562		Widget circclip flange	600	0.02
16						TOTAL AMOUNT

Microsoft Works' spreadsheet might not have the cachet of Excel or Lotus 1-2-3, but it's more than capable of quite serious business use.

How about drawing and painting tools?

The closest you get is *Microsoft Draw*, which is a kind of mini-application. It does its best, but compared to *ClarisWorks'* Draw module it's feeble and limited. And while the word processor makes a reasonable stab at DTP, *ClarisWorks* blows it out of the water. Works is cheap and for home and light office use,

extremely effective. The database is powerful enough for contacts, invoices, mail-merging and other record-keeping tasks. The spreadsheet is well capable of keeping your accounts in order, predicting cash-flows and carrying out really quite complicated analyses. *Microsoft Works* will do all that users and small business owners are likely to ask of it.

DEVELOPER	PUBLISHER	CONTACT	PRICE	MINIMUM SYSTEM
Microsoft	Microsoft	0345 002000	£109	386, 6Mb, 5Mb hard disk, CD drive, Win95

It's inexpensive, it's powerful and it does everything most of us will ever need.

8

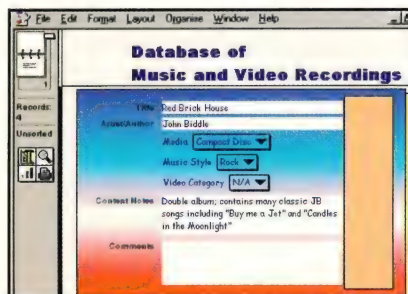
## BLOATWARE

Microsoft Office 97 might contain the industry's leading specialist office applications, but it's also – along with its rivals – given rise to the term 'bloatware'. Applications are getting bigger, fatter, more feature-heavy but also more overweight and complex. It's an evolutionary dead-end, and many in the industry are working on an alternative strategy – mixing and matching many smaller component programs to achieve the same effect. This is the thrust behind the whole OpenDoc architecture being pioneered by IBM and others, but it's also happening here and now thanks to Java applets. Indeed, once Java is built into all desktop PC operating systems, expect to see new applications emerging which are collections of much smaller autonomous Java components. Then, perhaps, we'll see the end of 'bloatware'.

# ClarisWorks 4

*ClarisWorks* is at a bit of a disadvantage compared to *Microsoft Works*. Firstly, the Microsoft program is a fair bit cheaper. Secondly, it's bundled with countless new PCs, whereas we haven't seen *ClarisWorks* pre-installed on any new machines, even though it's standard issue with an Apple Mac. Given that, the *Claris* program had better be good if it's going to steal any sales from its Microsoft rival.

Well, it's good. Very good. *ClarisWorks'* word processor is better than *Microsoft Works'*, for a start, and the database allows multiple layouts. And *ClarisWorks* has the neatest system for integrating different document types, allowing spreadsheet frames in drawings, for example. What's more, the interface feels fresh, simple and crisp – and



*ClarisWorks'* simple flat-file database is nevertheless quite up to tasks like cataloguing your video collection or maintaining your business stocks.



Photoshop it's not, but *Clarisworks* can carry out basic image editing.

the same tools appear throughout the modules, making the whole program feel very cohesive and well designed.

The drawing module has a couple of hidden surprises, too. You can use it to create the best DTP layouts any of these suites can manage, thanks to simple and obvious controls and the way you can link separate text boxes so that text flows automatically from one to the next. You can also use the draw

module to create half-decent presentations – something you can't do in *Microsoft Works*. And if that's not enough to convince you, *ClarisWorks* is alone here in having dedicated painting software. It can do light image editing duties.

If you only buy one integrated application for your PC, make it *ClarisWorks*. If you've already got *Microsoft Works*, stick with it because it's nearly as good.

DEVELOPER	PUBLISHER	CONTACT	PRICE	MINIMUM SYSTEM
Claris	Claris	0345 413060	£151.58	386, 8Mb, 12Mb hard disk, CD drive, Win95

Simply the best. Alarmingly straightforward, remarkably powerful, fresh and friendly.

9



## COMPETITIVE UPGRADES

The prices listed for Corel Office, Microsoft Office and Lotus SmartSuite are enough to bring tears to your eyes. Except that their publishers are so keen to steal customers from their rivals that they offer extremely attractive 'competitive upgrades'. Their special upgrade prices don't just apply to previous versions of their own products, but to those of rivals, too. So, for example, if you currently use Microsoft Word, you could get Corel Office 7 or SmartSuite 97 at less than half the RRP. It's a jungle out there.

## RATHER FLOPPY?

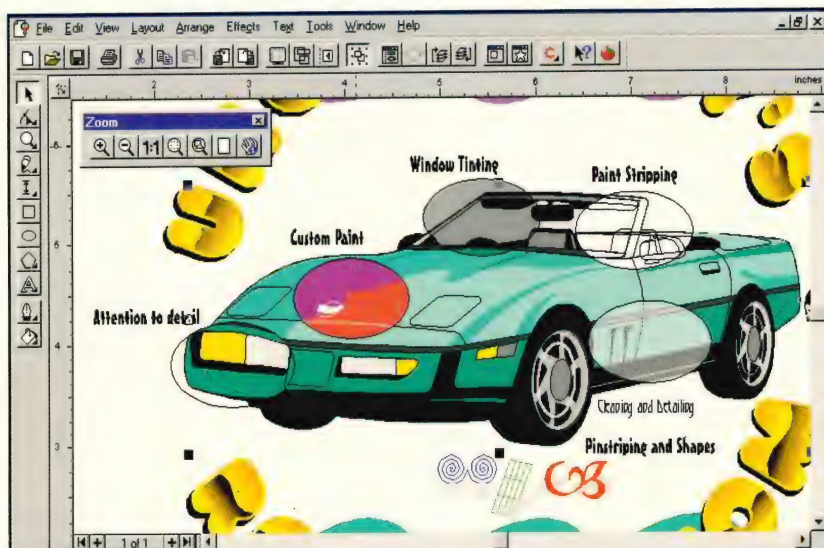
ClarisWorks and Microsoft Works are the only two programs here still available on floppy disk – essential if you haven't yet succumbed to the lure of the CD-ROM. And Windows 3.1 owners will find their choice further narrowed – Works (version 3.0) is the only non-95 application still available.

# Corel WordPerfect Suite/Office 7 Pro

Corel Office 7 feels like an alternative Office 97, a collection of all the programs used by people who don't like the Microsoft equivalent – the similarity extends to the fact the Corel product, too, comes in two versions. The WordPerfect suite includes WordPerfect 7, Quattro Pro 7 and Corel Presentations 7, while if you want a database you need to get the Office 7 Pro version, which is essentially the WordPerfect Suite plus Paradox.

The Corel suite doesn't hang together quite as well as Office 97, and feels generally dated. On the other hand, it uses Java technology to enable you to export interactive Web pages that mirror your original layouts and Web support and integration is the main theme throughout.

As with other Corel products, you get a truckload of extras, including not one but two personal organisers in the form of Sidekick 95

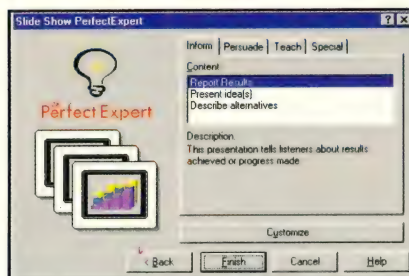


The mighty CorelDraw 6 is bundled with Corel Office 7 – you won't use every application in this suite, but you can't complain at the value.

and InfoCentral. Sidekick 95 is good – it looks a bit dated, but it's easy to understand and very versatile. InfoCentral offers a unique approach to information-handling, using links to create relationships between your bits of info. It's a brilliant idea wrapped up in an

interface from hell. Very sad.

There's also a container ship load of clip-art and fonts and other minor applications that tend to make the product feel more like a bunch of bargains from a house clearance than a top-flight professional office suite.



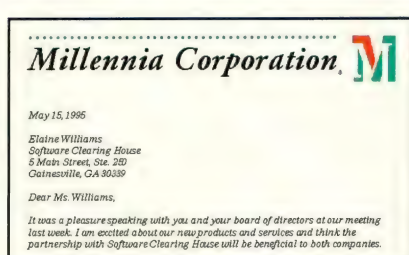
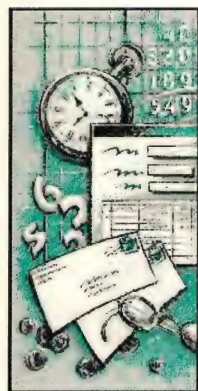
Corel Presentations 7 uses Experts (like Microsoft's Wizards) to guide you through the creative process. Presentation programs are one area where the big office suites score over the Works packages.

DEVELOPER	PUBLISHER	CONTACT	PRICE	MINIMUM SYSTEM
Corel	Corel	0800 581028	£307.85/540.5	486, 8Mb, 53Mb hard disk, CD drive, Win95

A strong rival to the dominance of Office 97, but it's just as expensive and the raft of extras makes it feel messy.



# Lotus SmartSuite 97

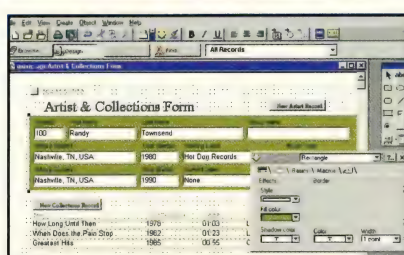


Lotus Word Pro uses clickable tabs to structure long documents and to help you get where you want to, fast. This all adds towards making it one of the best at handling long and complicated documents.

Is this it? Turn the box round. Look at the back. Shake it and listen to the CD rattle. Let go and watch it float gently to the ceiling...

The most affordable office suite also comes in the lightest, most documentation-free box. This on-line documentation lark isn't all it's cracked up to be. It saves the publishers a good few quid because printing manuals is expensive, and on-line documentation is interactive and quick. It's also disorientating, though, and you can't take it into the bog to read it.

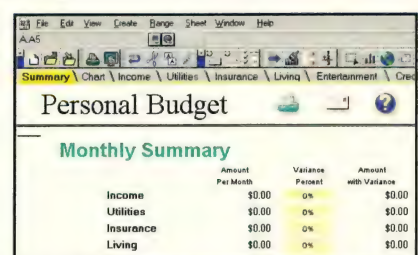
Lotus Word Pro, for example, is a fair match for Word and WordPerfect – it's certainly one of the best at handling long



Lotus Approach is a powerful relational database. Unusually, it doesn't have a file format of its own, but 'interrogates' files created by other applications.

and complex documents, thanks to clickable tabs for different sections and other navigation tools. And, like Word, it lets you build multiple-version documents.

Lotus 1-2-3 is also a pretty close rival to Microsoft's all-conquering Excel, especially now that it's fully 32-bit and has been given a major overhaul. And Lotus Approach is a very unusual database application – it has no specific data format of its own, but can



Lotus 1-2-3 has at last appeared as a full 32-bit application in Lotus SmartSuite 97. Lotus must be hoping it can now gain lost ground against Microsoft Excel in the spreadsheet stakes.

'interrogate' many other leading database formats. Freelance Graphics is Lotus's presentation application, and the personal organiser side is looked after by Lotus Organiser, also recently upgraded to 32-bit. Lotus Organiser looks just like a paper-based organiser and combines powerful functions with a simple, easy to understand interface – it's just about the best organiser here, and certainly the most intuitive.

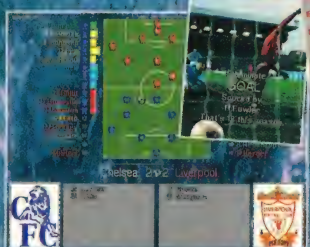
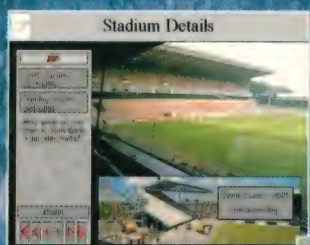
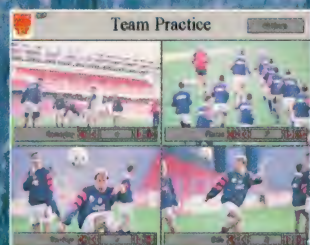
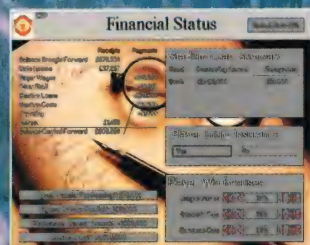
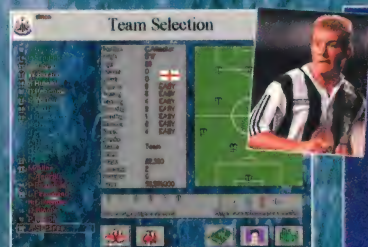
DEVELOPER	PUBLISHER	CONTACT	PRICE	MINIMUM SYSTEM
Lotus	Lotus	01784 455445	£439.45	86, 8Mb, 57Mb hard disk, CD drive, Win95

Smart indeed, and slick too. Lots of features for team working and Internet access/authoring, but not quite front-line applications.

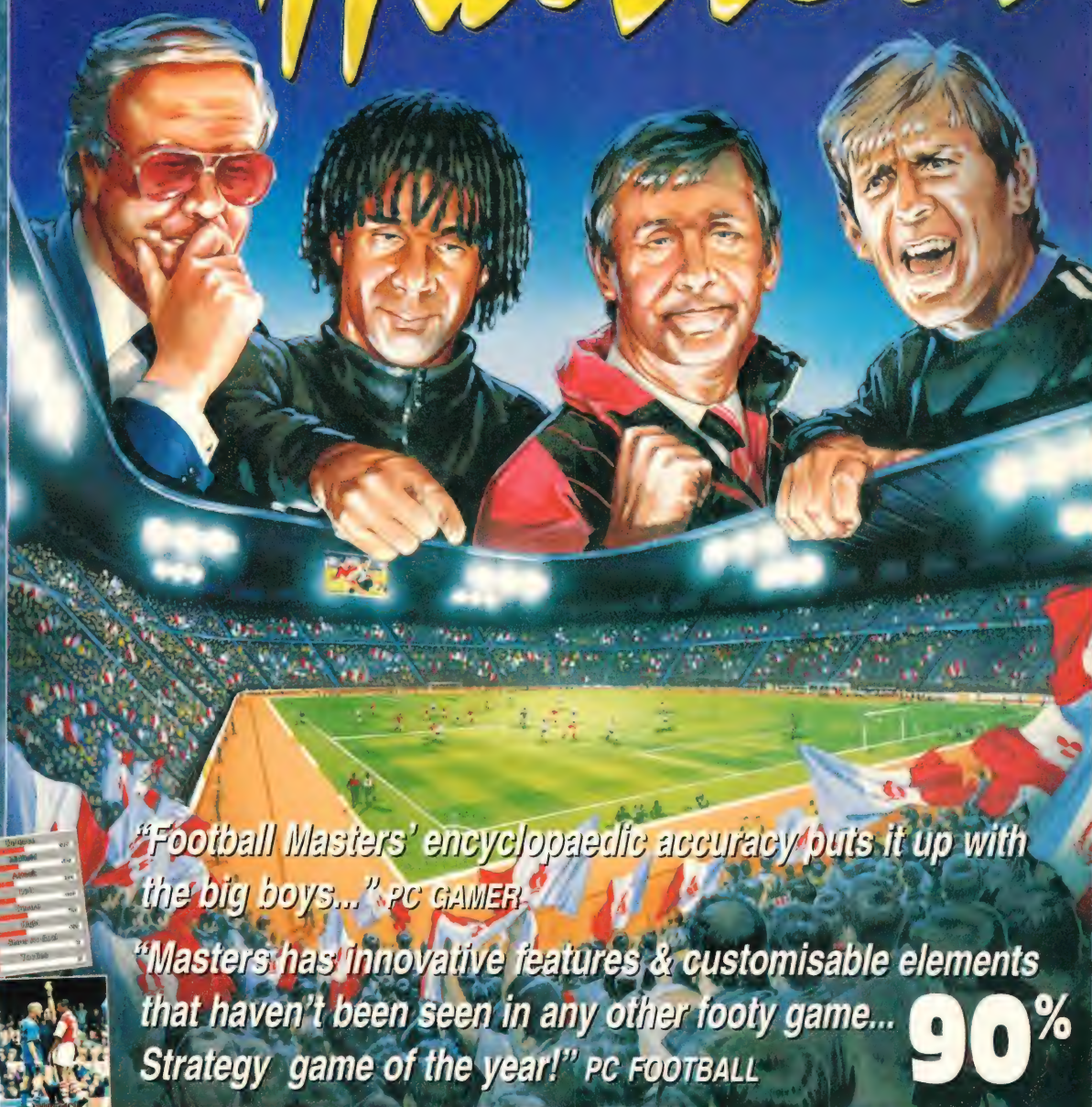




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*This is a city with a secret. The children that used to crowd its streets are vanishing one by one, and no one knows where or why they've gone.*



*Perhaps Miette, a streetwise kid with a knack for petty theft, could be the one with the skill and cunning to solve the mystery.*

*But can a child survive in such a strange and fantastical city, full of dangerous characters? Is she up to such a bizarre mission?*

*Or, more to the point, are you?*

# The City of Lost Children







# DR SOLOMON'S ANTI-VIRUS TOOLKIT

**Anti-virus software might seem expensive but, just like home contents insurance, what you're really buying is peace of mind. Scrimp on a good package now and you might regret it later.**

**L**ike being laid up with 'flu, having your machine infected by a computer virus leaves you unable to work, miserable, and wondering how on earth you caught it. And just as influenza often strikes without warning, one of the 300 or so new computer viruses discovered each month can all too easily invade your PC from a floppy disk or the Internet.

However, unlike a common cold no amount of idle rest will cure a stricken computer. Depending on the type of virus, it could remain in your system causing damage until infected files are removed or repaired. Thankfully it's somewhat easier to protect your PC than avoid catching cold.

What you need is a program that sits in the background and checks every file and disk accessed to prevent virus-infected executable files from running. One such program is WinGuard – one of the utilities contained within the Windows 95 version of

*Dr Solomon's Anti-Virus Toolkit*. WinGuard loads into your PC's memory when Windows starts and watches for more than 11,000 viruses, some of which were written specifically to operate within Windows 95. If WinGuard finds a virus it recognises in a file attached to an email message, downloaded from the Internet or on a floppy disk, it sounds an alarm and prevents access to the infected area. It also checks for polymorphic viruses, which change their appearance by mutating into different combinations of code.

However, by itself, WinGuard isn't enough to protect your PC because DOS runs briefly before Windows 95 starts up. To get around this problem, *Dr Solomon's* includes VirusGuard, which operates in DOS and loads into memory. VirusGuard also scans for known viruses whenever an executable file is accessed, although it can't prevent some more complex polymorphic viruses from running.

Memory-resident virus checkers like WinGuard and VirusGuard are fine for detecting known viruses, but they can't detect new ones or clean up after an infection. To do either of those you'll need the FindVirus scanner, another of *Dr Solomon's* applications. If a known virus is discovered, you can deal with it by using FindVirus either to repair infected files or shred them so there's no chance they can be recovered. FindVirus also includes a heuristic scanner to

check for elements of suspicious code that could be the tell-tale signs of a new virus.

Important as scanning undoubtedly is, setting aside a few minutes each day to scan hard and floppy disks is inconvenient for most people, so it's a good thing you can instruct *Dr Solomon's Scheduler* to run

FindVirus at a time of your choosing, or at regular intervals such as hourly or once a day.

The crucial test for *Dr Solomon's*, and equivalent software from other manufacturers, is its ability to identify a virus. However, that's far from easy to measure because some products are over-zealous and identify as viruses

programs that are perfectly benign, thereby causing even greater inconvenience. Perhaps the best-known test organisation is America's National Computer Security Association (NCSA), which operates a rolling certification scheme for anti-virus software. The Windows 95 version of *Dr Solomon's* passed tests conducted by NCSA and this fact, along with the year's worth of upgrades included in the price, makes it a sound investment for any PC user. (GS)

## Artificial life

A virus is a program that places a copy of itself in other programs to infect them, and propagates by executing itself when the program runs. Viruses cannot spread without human assistance. The exchange of software via disks and the Internet fulfils a similar role to sex in human reproduction, and polymorphic viruses even mutate in a similar way to human genes. Closer than viruses to being true artificial life forms are worms – programs that propagate by reproducing themselves over a network.

## MICHELANGELO'S BIRTHDAY

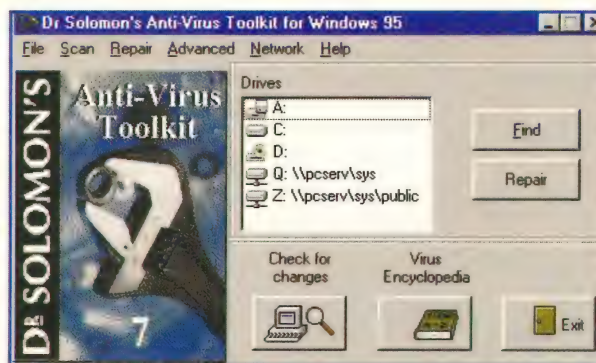
One of the most famous virus scares came in 1992, when some US manufacturers of anti-virus software predicted that five million computers would be infected with the Michelangelo virus on 6 March – Michelangelo's birthday. In the event, an awful lot of experts were left with egg on their faces when only about 10,000 machines went down. Naturally, anti-virus sellers took credit by claiming their warnings had helped prevent widespread disaster. The NCSA Virus Lab is on the Web at: <http://www.ncsa.com/virus/>

**DEVELOPER**  
Dr Solomon's Software  
**PUBLISHER**  
Dr Solomon's Software  
**CONTACT**  
01296 318700  
**PRICE**  
£220 for product and one year of monthly updates (£125 plus updates).  
**MINIMUM SYSTEM:**  
486, 8Mb RAM, Windows 95

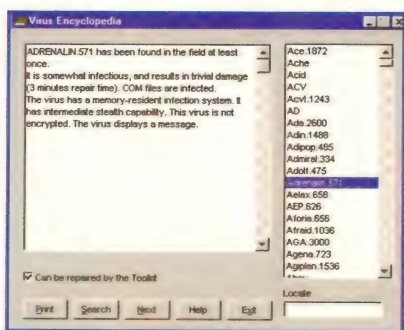
PC REVIEW VERDICT

Worth buying, especially if you frequently use floppy discs or download files from the Internet.

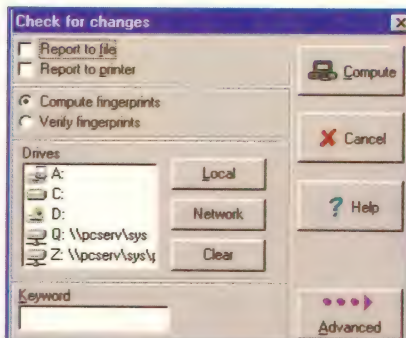
8



You can use Dr Solomon's to carry out a normal scan or check files for suspicious changes.



Dr Solomon's Virus Encyclopedia is bundled with Dr Solomon's as a database and as a printed manual and includes a brief history of viruses.



If executable files on your PC have changed, it may be because they've become infected with a virus.



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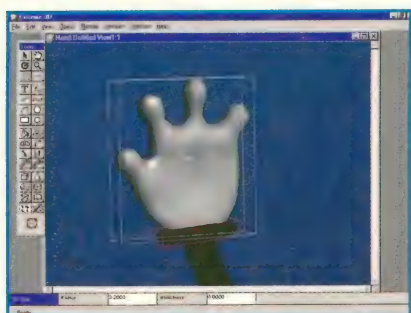
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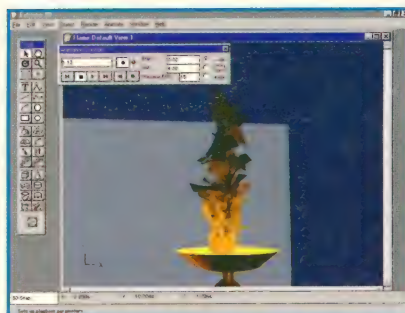
**Buy it now before it sells out!**

**NEW FAMILY PC? WE SHOW YOU EVERYTHING THAT OTHER PC MAGS TAKE FOR GRANTED**

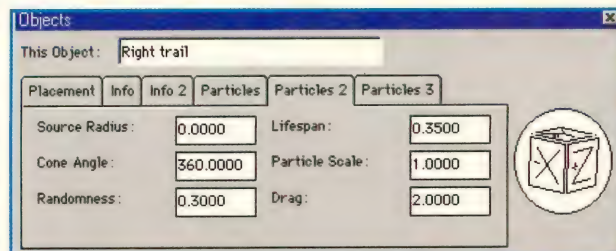




A metaform modeller can be used to easily create squashy objects like this cartoon hand.



Complex animations such as this flame are only possible with the new particle system.



Here you see the preferences for a single particle system source. You can assign a different polygon to each set of particles – perfect for creating leaves.

# EXTREME 3D 2

**You might be a 3D expert, but can you build your own realistic models? Extreme 3D makes it easy for you.**

Anyone who's tried it can tell you that building decent-looking 3D models is difficult and time consuming. Sure, it's straight-forward enough to make cubes, spheres and other shapes based on 3D primitives (the building blocks of a modelling program), but if you want to create real-world objects or organic models, it's much harder. This is one area where most budget programs such as *Visual Reality* and *Ray Dream* fall down, and even full-priced industry standards such as *3D Studio* require expensive add-ons before they become very useable. But not *Extreme 3D 2*; it provides you with an impressive array of modelling and animation tools.

The first version of the program failed to win friends or influence people because despite its power, especially as a precision animation tool, its interface was quirky to say the least. It hasn't been much improved in

this version, although the help system has been revamped. It's not so much that the interface is unfriendly – it's just too unusual. Having used it for a while, you'll adapt, and then you can really get to grips with all of its powerful features.

The program is a full 3D modelling and rendering system, and like *3D studio*, it uses advanced Phong shading for drawing the final images, rather than the slower but more accurate ray-tracing method. For all but the most demanding requirements, this should prove to be more than adequate. In fact, among its new features are more precise controls over object luminosity, as well as better shadows for transparent objects.

Its biggest asset is definitely the range and flexibility of its object-modelling tools. Two new options, metaforms and particles, now supplement the usual features such as sweeps, extrusion, lathes and skins.

Metaform modelling is ideal for creating organic shapes and animating them. It enables you to generate soft blobby-looking models using standard geometric shapes as a framework on which to mount the blobs. For instance, by applying the metaform tool to a simple rectangle, you have the basis for a face, an animal's body or a host of other previously hard-to-model squidgy objects.

As for particles, *Extreme 3D* now includes a fully developed particle system, which is used in the generation of random object patterns, especially in animation. For example, swirling flakes of snow and rushing torrents of water are all prime candidates for this powerful technique. However, if a particle system is applied to a static frame, it can be used to accurately reproduce the random distribution of such objects as leaves on a tree, tongues of flame in a fire or heads in a marathon race. It's a tremendous boon,

because it means that you don't have to manually duplicate each occurrence of an object in a cluster or group, nor do you have to worry about making the object distribution look naturally random.

One weakness in the program's modelling tools, is the absence of any but the most basic boolean operations. You can use simple 2D shapes to trim or cut 3D objects, but complex operations, such as using one 3D object to remove holes from another, are simply not possible. (MB)

## INTERNETTED UP

It probably won't come as any surprise to you to learn that *Extreme 3D* now supports the major file formats required to produce Web pages. For static graphics, it supports *Progressive JPEG* and *GIF* formats, whilst animated *GIF* offers two dimensional animation. If you want to go the whole hog, you can output your animations as *VRML* (Virtual Reality Modelling Language) files that people can wander around themselves. Both *VRML 1* and *2* are supported.

Gorgeous scenes like this artist's studio demonstrate the subtle lighting effects that can be achieved if you spend the time.



Despite the absence of true boolean functions, the program is still a very powerful modelling tool.

**DEVELOPER**  
Macromedia  
**SUPPLIER**  
Macromedia  
**CONTACT**  
01344 55644  
**PRICE**  
£558.13  
**MINIMUM SYSTEM**  
486DX, 16Mb RAM,  
40Mb hard disk, CD  
drive, Windows 95

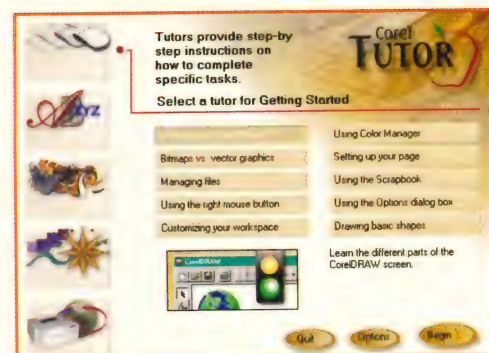
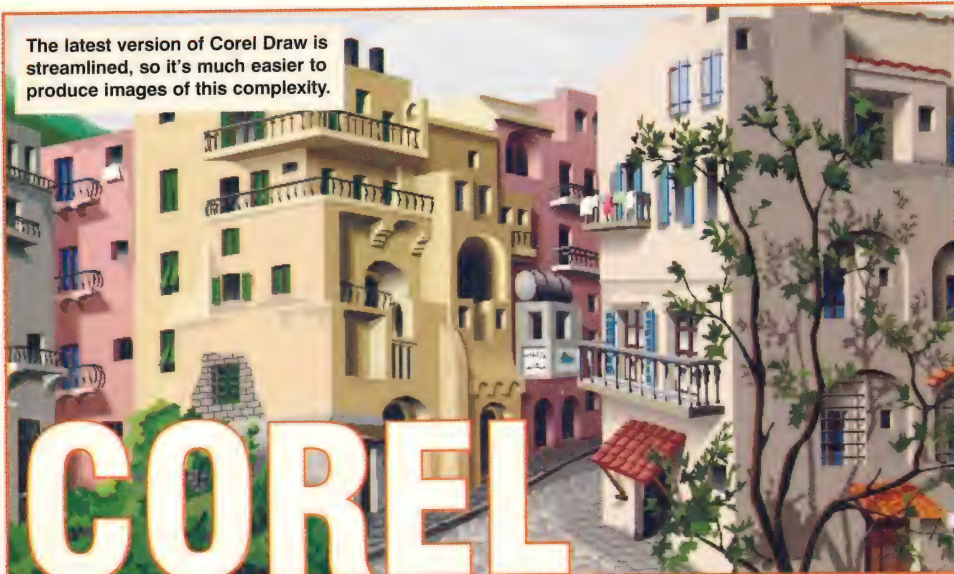
PC REVIEW VERDICT

*Extreme 3D 2* is very powerful, but best used as another tool in your arsenal, rather than your only one.

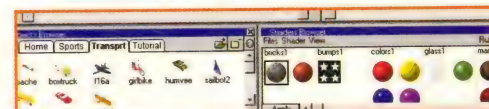
7



The latest version of Corel Draw is streamlined, so it's much easier to produce images of this complexity.



With Corel Tutor, you can learn how to perform common tasks with the greatest of ease.



As an entry to intermediate level 3D program, it's very hard to find fault with Corel Draw.

# COREL DRAW 7

Corel has taken a major change in direction with their latest graphics release. But is it a change for the better?

Imagine you want to buy a vector graphics program, a ray tracer, a presentation language, a photo editor, a font handler and several lesser graphics programs. Would you prefer to spend almost £500 on one bundle that includes them all, or £600 over a period of months, carefully selecting the best program in each genre?

Corel clearly thought that you'd go for the former. Previous versions of *Draw* cost a lot, but included every conceivable type of graphics program. In version 7, it has reduced the line up but increased the quality. The suite now focuses on three core elements: *Draw* for creating high-quality, scalable vector graphics, *Photo Paint* for bitmap and photo manipulation and *Dream* for 3D design and rendering.

One constant criticism levelled at *Corel Draw* is the slowness of its vector drawing program. When loading complicated graphics, you could often sit for minutes at a time waiting for the screen to update itself. This is one of the areas that's been addressed in version 7. In fact, Corel has retooled the program, reducing file sizes, optimising code and generally creating a

sleeker, more usable piece of software. The improvements aren't all behind the scenes either. The program has never been particularly friendly towards graphics novices, but this version certainly rectifies that, courtesy of an adaptive hints window. When you first load the program, the hints window displays several choices enabling you to quickly learn basics such as creating shapes. However, as you move around the program, the hints change to describe the current tool, and how to use it. The process is very intuitive, and makes the program so much friendlier.

A problem for any program that's evolved over a long time, is how to keep adding genuinely useful new features, rather than a mere series of almost invisible increments. Among *Draw*'s more important new features is the ability to adjust the transparency level of bitmaps as well as

vector graphics. This means that you can create fades and complex layered objects with unparalleled ease. *Draw* now includes Natural Pens, which replaces the Powerlines feature in previous versions. The idea is that you can draw with strokes that have variable thickness across their length in a flowing, brush-like manner. However, by simply adjusting a standard nib's angle and width, you can just as easily create italic effects. Although neither option is like the natural media nibs found in *Fractal's Expression*, they are a step in the right direction.

*Photo Paint* has also been updated, but unfortunately it's not all for the better. The program was already very streamlined and intuitive, but now image processing effects such as colour balancing, have been moved from their original menus, into new, less obvious ones. The print requester has also been modified, and while this is clearly an attempt to give you more precise control over the way print-outs are balanced and output, the whole area has merely become a needlessly complicated mess. To improve the speed of the program, its memory structures have been changed too. These enable faster loading and screen updates, but they seem to be partially overridden by your Windows defaults, which can cause problems. However, it would be wrong to trash the program, especially as it's still among the top photo editing packages for the PC, satisfying professionals and amateurs alike. It has some spectacular special effects, and its speed and immediacy over is much preferred over Adobe's *Photoshop*. (MB)

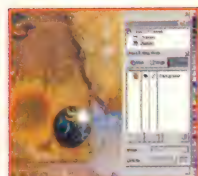


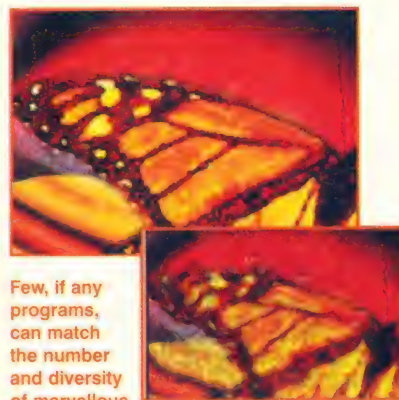
Photo Paint 7 has pointlessly sacrificed some user-friendliness. Corel tried to fix what wasn't broken.

**DEVELOPER**  
Corel Corporation  
**SUPPLIER**  
Channel Marketmakers  
**CONTACT**  
01703 814142  
**PRICE**  
£464  
**MINIMUM SYSTEM**  
P60, 16Mb, Win95,  
40Mb hard disk, VGA,  
CD-ROM

The program is significantly better for power users, but represents worse value to beginners. Still the industry leader though.

8

PC REVIEW VERDICT



Few, if any programs, can match the number and diversity of marvellous special effects offered by *Photo Paint*.

## Some alternatives

Although *Corel Draw* is probably the most powerful vector drawing program around, there are loads of friendly alternatives for home users. The best of these is *Windows Draw* from Micrografx (01483 747526) and *Draw Plus* from Serif (0800 924925). With tons of page Wizards and some really fun options, they're likely to be more than adequate. At the professional end, you may simply prefer a different interface, in which case you should consider *Illustrator* from Adobe (0131 451 6888) or *Freehand Graphics* from Macromedia (01344 55644).



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# TITAN III

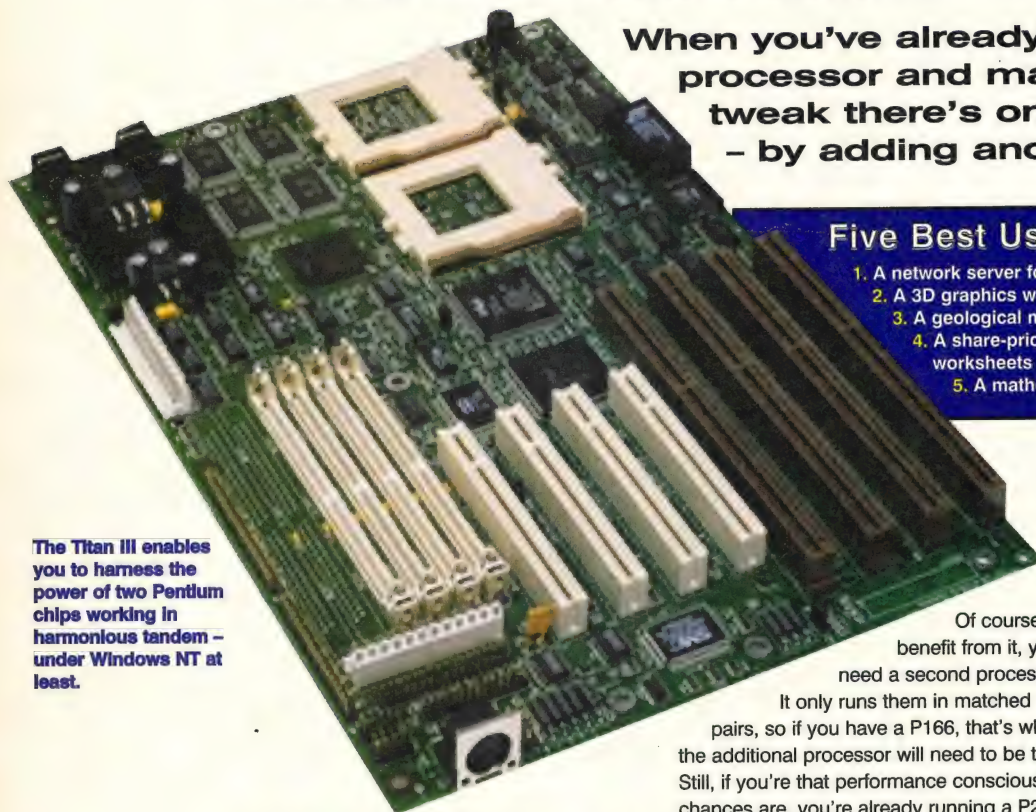
## DUAL PROCESSOR MOTHERBOARD

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The Titan III enables you to harness the power of two Pentium chips working in harmonious tandem – under Windows NT at least.



Of course, to benefit from it, you'll need a second processor. It only runs them in matched pairs, so if you have a P166, that's what the additional processor will need to be too. Still, if you're that performance conscious, chances are, you're already running a P200.

instruction set optimised for a 32-bit operating system, Windows 95 simply refuses to recognise more than one processor. Apparently, the next version of Windows (dubbed Windows 98 or 'Memphis') will support multiple processors, but not the current version. If you use the motherboard under Windows 95, it only uses a single processor. Having said that, the Titan III is not aimed at people who just want to run *Office* or *Quake*, it's targeted at high-end users, most of whom are already running Windows NT, Unix or less commonly, OS/2, all of which do recognise more than one processor. Most

**W**ould you consider yourself to be a power user? If so, you'll know that you can never have too much processing power. You might own a Pentium 200, but when it comes to processor-intensive applications like 3D rendering, landscape generation and even spreadsheet calculation, your state-of-the-art machine can be made to look like a feeble 386, leaving you twiddling your thumbs for minutes or hours at a time. If you're just using your machine for fun, that might not matter. However, if you're in school or college where access time is rationed, or you're in an office or studio where time is literally money, you're going to want your PC to run at Mach 1 all the time. One solution is to upgrade from a Pentium to a Pentium Pro, but if you're going to buy a new motherboard and processor, perhaps you might be better off expanding your existing system to a dual processor.

In order to do that, you'll need a dedicated motherboard such as the *Titan III*, which has the space and architecture to support a second processor. It costs two or three times as much as an entry-level Pentium Pro motherboard.

## TitanIII is a cheaper, and in some cases better option than upgrading to a Pentium Pro.

A second P200 will cost less than half the price of a top-of-the-range Pentium Pro chip, so there's a very significant cash saving to be made. If you're not particularly flush, you might be interested to note that you don't have to run two processors in the Titan motherboard, so you could buy the board one month, then a few months later go for the second processor. Also, because the board is fundamentally the same as most other Pentium motherboards, you'll still be able to use your existing RAM and other peripherals, which is not always the case when moving to a Pentium Pro motherboard.

So now you've got your new motherboard and processor, how does it work? Unfortunately, the answer is, not how you'd like. Like Pentium Pros, multi-processor systems don't work well under Windows 95 or 3.1. However, with the Pentium Pro, which merely runs an

commonly, the motherboard will be used on systems running Windows NT. In such circumstances, the performance increase ranges from no improvement, to 100 per cent faster. The exact figure depends on your system configuration, the amount of RAM and the program you're using. Even although NT supports multi-processors, each software application has to be specifically written to take advantage of it. Most decent graphics and almost all NT-specific titles support dual processors. In operation, processing jobs are automatically shared between processors.

If you primarily work in an NT environment, *Titan III* is a cheaper, and in some cases, better option than upgrading to a Pentium Pro. However if you spend a lot of time using Windows 95, then a Pentium Pro, or one of the forthcoming 233 or 300 Mhz Pentium chips is your best bet. (MB)

**DEVELOPER**  
American Megatrends  
**PUBLISHER**  
American Megatrends  
**CONTACT**  
01293 882316  
**PRICE**  
£471.17  
**MINIMUM SYSTEM**  
None

For NT-using graphics professionals and other power users, the Titan III provides a powerful alternative to the Pentium Pro.

PC REVIEW VERDICT



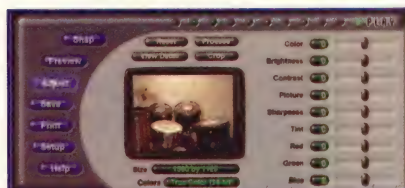




Snappy is a cheaper alternative to digital cameras. It's great for capturing single frames from a live camera.



Snappy is very easy to use, and you don't even have to open up your computer to install.



You can capture single images at extremely high quality at resolutions up to 1500x1125.



Although Adobe PhotoDeluxe is included with Snappy, it can be used with any Twain compliant graphics software.

# MAKE IT SNAPPY

Digital cameras can be a lot of fun, but they cost a small fortune and the quality often fails to impress. We show you a much cheaper alternative and, holding our poses, put it to the test.

**Y**ou might think a capture card that only grabs single frames is not the best of ideas, especially with so many cheap video capture cards on the market. However, after seeing Snappy you might change your mind because it's a little card with big performance.

Digital cameras are the in thing at the moment, but even the cheapest, at £250, is still not exactly inexpensive. Worse still, they often limit you to resolutions of only 640x480 or even 320x240. To go to 800x600 or beyond is likely to cost you £500, and real quality can cost thousands. But do you really need a digital camera? If you have a video camera, the answer's no, as Snappy will give you twice the quality and ten times the versatility for a fraction of the price.

Snappy is a module a little larger than a packet of cigarettes. It plugs straight into your parallel port, so there's no messing around inside your computer's case. Unfortunately, it doesn't provide a through connector, so if you want to leave your printer connected, you'll need a splitter box, available from most peripherals

shops for about £20. It comes with some proprietary software, as well as Kai's Powergoo, Adobe Photo Deluxe and Gryphon Morph.

Because the drivers are Twain compliant, you can capture images from any compatible graphics soft-

Snappy beats many other video capture cards on the market.

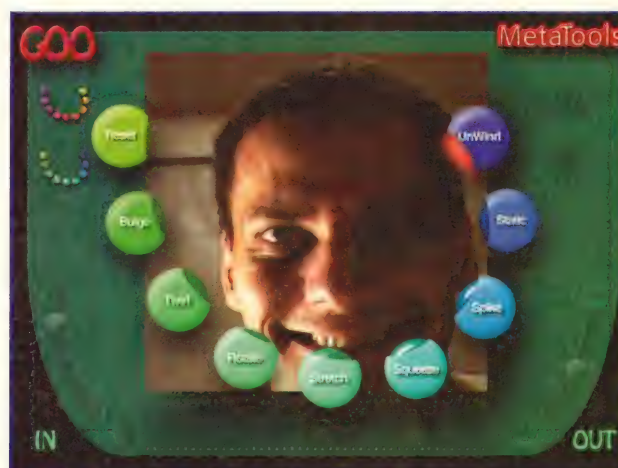
ware, and just about every modern program is.

Once the software is installed, it checks to see if the hardware is connected, after that you'll want to set up the preferences to your own taste. Snappy can capture from any moving or still video source as long as it provides a composite output. That means you can capture from any video camera, any modern VCR and many TVs. There are four capture modes, ranging from Highest Quality Still Scene to Moving Scene.

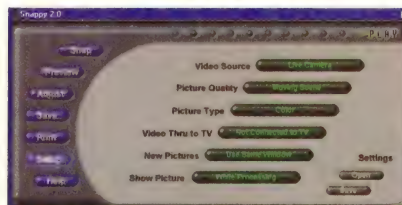
The difference between the modes is part of what makes Snappy so exceptional. Unlike other products which simply grab a single image, when Snappy captures a scene, it records numerous copies. Because the hardware understands the way that video camera CCDs (the camera's digitising matrix) work, it's able to compare any differences between frames to produce a better image. This is done for two main reasons: the first is to improve the accuracy of the capture, and the second is to improve its resolution. At Snappy's highest pre-defined resolution of 1500x1125 pixels, the quality and image clarity was every bit as good as the lower resolutions. Digital cameras that offer such resolutions, start at £2000 and go up to £10,000!

Of course, Snappy isn't portable like a digital camera is, but if you own a S-VHS or Hi-8 camcorder, you can take your camera anywhere you like, with the added advantage that you can record motion footage, thus increasing your chance of recording the precise moment you want for posterity.

One disadvantage with Snappy is that its highest quality digitising mode requires a very still image to work from. If you don't have a perfect freeze frame, you'll have to opt for



You can warp images you grab with Snappy using Powergoo which is supplied with Snappy and worth £50 on its own.



The really clever thing about this system is the way that it adapts its capture and processing according to the input source.

one of the less impressive modes. As for recording portraits, you can use the lowest two modes, assuming you can stay still for a few seconds, however, try as we might, we found it impossible to hold a natural smile for the time it took to capture the best quality.

Although it can't record any kind of motion it can capture single frames from live video. As an alternative to low quality, high cost digital cameras, Snappy is a good bet. (MB)

**DEVELOPER**  
Play  
**SUPPLIER**  
Logitech  
**CONTACT**  
01306 734300  
**PRICE**  
£199.99  
**MINIMUM SYSTEM**  
386, 8Mb, Windows  
3.1, 4Mb hard disk,  
Parallel port

**PC REVIEW VERDICT**  
Snappy is the world's highest resolution capture device, with quality to match. Stunning.

9





### WHAT IS A CONTROLLER KEYBOARD?

Blasterkeys is a controller keyboard. That means that it connects to your computer via a MIDI (Musical Instrument Digital Interface) lead. Before MIDI, keyboards always had their own sounds onboard, and the quality of these sounds, and the range of things that you could do to them, largely defined the price of the keyboard. However, a controller keyboard is nothing more than a dumb terminal, a means of telling the sound source what notes to play, and how (in simple terms only) to play them. The Blasterkeys keyboard is very simplistic, but more expensive controllers offer additional controls ranging from pitch and modulation wheels, right through to total control over every other device in the MIDI chain.

# BLASTERKEYS HOME STUDIO

**Your PC is the perfect companion to help you learn to play the keyboards. Blasterkeys is your patient tutor.**

Piano lessons currently cost around £15 an hour, and if you want to be any good you'll need hundreds of hours of teaching and much more solo practice. It's not an exaggeration to say that it'll cost you thousands of pounds to become an accomplished player. However, with your PC you can learn at a far faster rate, for a fraction of the cost.

Blasterkeys Home Studio gives you everything you'll need to learn, practice and even to create your own compositions. The most important part of the set-up is the keyboard. It's a four octave model, with full-sized, velocity sensitive keys. That means it has half the number of keys of a real piano, but because they're full-sized, at least you

won't be cramped, unlike the rival keyboard from Reveal. Although velocity sensitivity won't be important initially, as you develop finger control, it enables you to perform more expressively, because it can recognise the speed and force with which you strike each key. Whilst the keyboard is light with a soft plastic shell, the keys feel quite pleasant and have a decent action to them. This is in marked contrast to the Evolution and Reveal keyboards.

The second part of the package is an AWE32 Plug and Play sound card, one of the better cards in Creative's line up. It

comes with a full set of General MIDI wave-table instruments, so, as you become more proficient, there'll be enough variety to keep you interested. Also, if you start composing, you'll appreciate the ability to choose from a full orchestra of instruments. The instrument sounds are not of professional quality, but they're perfectly adequate for home use. Furthermore, because the sound card is industry standard in its own right, it will be 100 per cent compatible with your games when you're not using the keyboard.

The keyboard attaches to the soundcard via the joystick port, and all required cables are included. There's a MIDI out port on the

keyboard in case you want to control additional MIDI devices, such as external synths, or XG cards.

The package includes a plethora of music programs, covering every possible use. For the music student, there's *Piano*, a tutorial program that supports multiple users, and takes you through the basics of playing keyboards. The lessons are fully interactive,

and unlike a music teacher, it doesn't charge by the hour or roll its eyes skyward each time you make an unforgivable mistake... Better still, it's always available when you are!

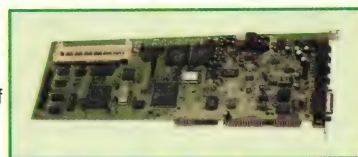
For more advanced or ambitious users, *MIDI*

*Orchestrator* is a sequencer that you can use to record your own compositions. The program is very popular with newcomers to the world of sequencing because it's so easy to use, however experienced music makers may find its old-style track view window rather too primitive for their liking.

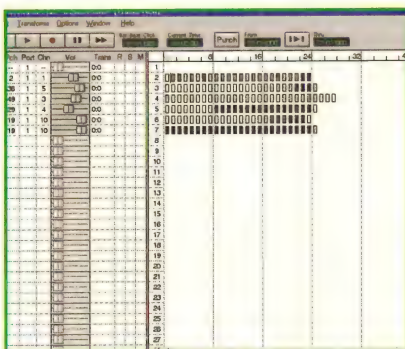
If you want to learn to play keyboards, Blasterkeys offers a moderate compromise between quality and price. The keyboard accounts for the bulk of the cost, and it's certainly better than either of the other two rival products. Nevertheless, it would have been nice to see a full sized keyboard, with proper MIDI controllers for the money. (MB)



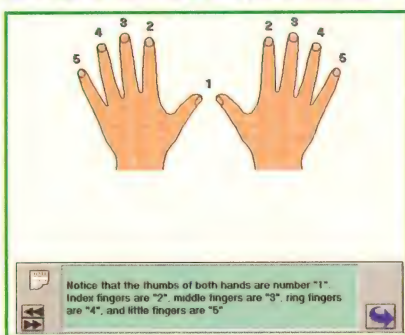
The Blasterkeys keyboard feels quite responsive, although it only has half the keys of a real piano keyboard.



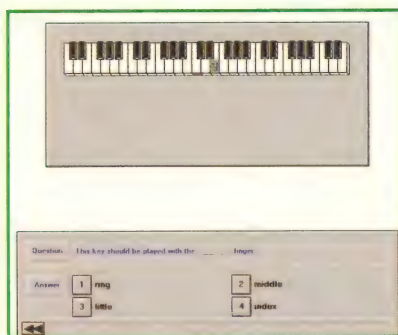
As part of the Home Studio package, you get the AWE32 sound card – a superb piece of hardware.



MIDI Orchestrator Plus is a nice sequencer package for recording your performances.



You can learn to play using Piano, the interactive software included with Blasterkeys.



The keyboard tutorial software questions you to ensure that you understand.



Learn how to use the AWE's Soundfont feature using the pre-recorded tutorial.

**DEVELOPER**  
Creative Labs  
**SUPPLIER**  
Creative Labs  
**CONTACT**  
01734 344322

**PRICE**  
£249 (with sound card)  
£199 (no sound card)  
**MINIMUM SYSTEM**  
486DX, 8Mb, 10Mb  
hard drive, 16-bit slot,  
CD-ROM, Windows 3.1

It's a bit expensive, but Blasterkeys is a great start for a family who wants to learn to play the piano.

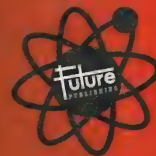
PC REVIEW VERDICT





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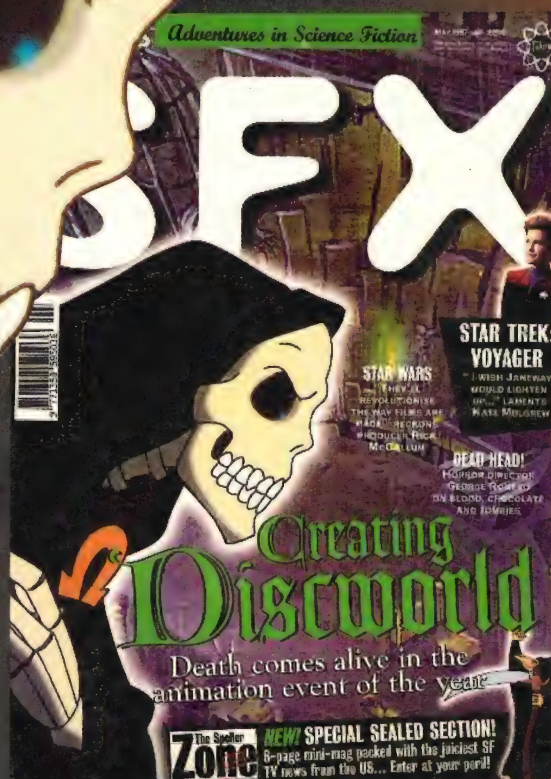
...AS PRATCHETT'S DISCWORLD GETS ANIMATED FOR THE SMALL SCREEN. GO BEHIND THE SCENES OF THIS TV BLOCKBUSTER IN THIS MONTH'S SFX.

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 **ZOMBIES GALORE:** Dawn Of The Dead director George Romero on creative uses for chocolate sauce

 **STAR WARS:** THE PREQUELS: the new producer reveals more of Lucas' plans for Star Wars 1, 2 & 3



# SFX

The world's greatest SF magazine...





# REMOVABLE STORAGE

Don't limit yourself to the confines of your hard drive. With removable storage you can break free.

**T**he Internet holds an abundance of exciting material ranging from music and graphics to full commercial programs, all of which occupies precious hard drive space. According to the hard drive manufacturers the Internet accounts for the vast majority of supplementary storage bought by their customers. The trouble is, hard drives are relatively expensive, and even the biggest system has a limit on the number of drives that you can add. With removable storage, you can increase the capacity of your system, infinitely. Better still, you can swap disks with your friends and colleagues.

There are numerous types of removable storage ranging from large capacity, hard disk-like Winchester drives, to lower capacity, flexible media systems such as Zip disks. Each offers different benefits, ranging from inexpensive portability to massive capacity and high speed. The drives that use a Winchester mechanism are literally removable hard drives and can be used in exactly the same way. The media is a rigid, coated aluminium disk, which, because of its rigidity, can be rotated very quickly and thus has a higher transfer rate than other types of storage. Accessing such media doesn't require the read/write heads to contact the surface, so the disks are less likely to wear out, and in some cases, have a lifetime warranty. At the other end of the scale, flexible media are light and have a low read speed. However, because their capacity is generally lower, individual disks are cheap enough for you to afford lots of them, enabling you to trade with friends. Although the cases are more robust, the media has a shorter life and can be worn out with prolonged rewrites.

When deciding which type of device to choose, ask yourself are you buying it primarily for long term storage and to free up hard drive space, or simply as a means of taking some games or pictures round to your friend? If it's the latter, a Zip or Parallel port hard drive will certainly suffice. There are choices to suit every pocket, so read on.

## 6x Atapi PD Drive

**6**50 megabytes is an important figure in storage terms because it's the capacity of a single CD-ROM. This drive is exactly large enough to make the grade, so you can use it to store copies of CDs that you're building. It's especially useful because, like many people, you may not have much upgrade space inside your PC. Although this drive is an internal unit, it also incorporates a six speed CD-ROM drive. The drawer opens and you can drop a normal CD into it, or a large square PD disk. The unit auto-detects which media you've used. Unlike the other drives which usually have a fixed transfer speed on any single system, the PD drive changes its rate according to which part of the disk you're accessing. Even so, its maximum rate is only 1141k per second – a tad below a ten speed CD ROM drive. That's not too bad for normal data transfer, but it's not enough for AV mastering, unlike the Winchester drives.

The drive is unique in this round up, because it



interfaces with your computer via an Atapi EIDE connector just like your hard drive or existing CD ROM. That means that you won't need any additional interfaces in order to use it. The very best thing about this drive is its price: at only £292.58, it competes easily with its lower capacity rivals. It's also particularly inexpensive to run, thanks to its cheap media which work out at a stunning 3.62p per megabyte!

**Although it's not as fast as it might be, you can't beat the Panasonic Atapi PD drive for sheer versatility.**



DEVELOPER	SUPPLIER	CONTACT	PRICE
Panasonic	Panasonic	01344 853334	£292.58

Panasonic's combined CD-ROM and PD drive offers large capacity, great flexibility and ease of use.



## Nomai 540

This compact and attractive external device uses cartridges slightly larger than ordinary floppy disks. Each one can hold up to 540Mb of data. The plastic media case houses a solid metal platter which rotates at high speed, offering one of the highest data transfer rates of 5.3Mb per second.

Although it's a SCSI device, don't worry because it comes with its own Adaptec interface, which may account for the price differential between the Nomai and D2 drives. It also requires an additional slot for its power adaptor, which connects to your

internal power system. If you use Nomai branded media, they only come in packs of ten at £45 a pack, however, you can use the D2 media which are a bit cheaper and can be bought in packs of three.

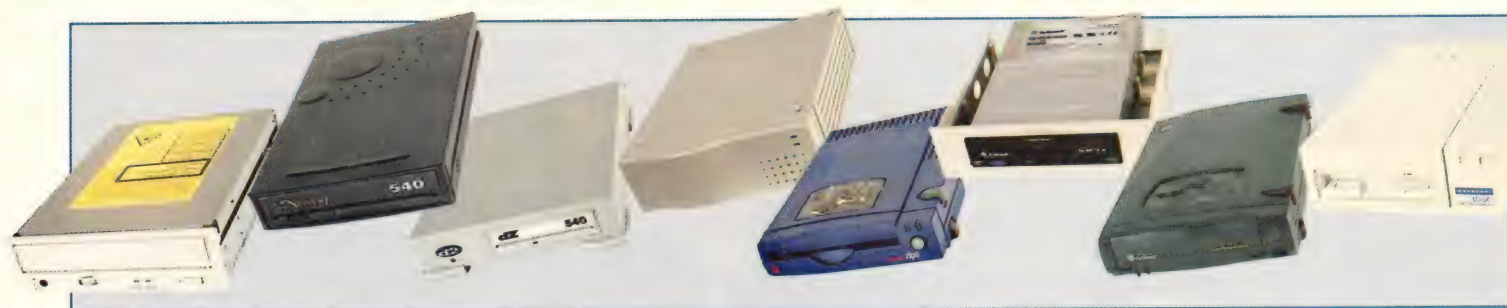
DEVELOPER	SUPPLIER	CONTACT	PRICE
Nomai	Computers Unlimited	0181 200 8282	£351.33

As nice as the Nomai 540 is, its additional system requirements slightly take the edge off it.



**If you want fast, robust storage, the Nomai 540 is certainly one of the best, but not the quickest to fit.**





## DZ 540



The DZ540 is extremely robust and offers 540Mb of storage per cartridge, as well as SyQuest 270 compatibility.

The DZ is a close relative of the Nomai 540. It uses identical media, and offers very similar specs, leading us to suppose that the same mechanism is used, with a different case and interface. Again, the DZ is a SCSI device, as are all the fastest removable storage drives. This one doesn't come with its own interface, but the price difference is more than enough for you to buy one from the savings. Surprisingly, with a transfer rate of 4.1Mb per second, it's significantly slower than its close rival.

One massive advantage that the DZ has

is its ability to read and write SyQuest 270 disks. These have become popular among the SyQuest-loyal design community.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Electronic D2	D2	0171 833 0009	£280.83

With a fast transfer rate and a low price tag and cost per megabyte, the DZ is a very nice piece of kit.



## DiskPlus 1.2



What the DiskPlus lacks in speed, it makes up for in convenience. It's similar in operation to a Zip drive.

Not so much removable storage as 'portable storage', Diskplus is a parallel port hard drive. It comes in two configurations; 3.5 or 2.5 inch and in virtually any capacity from 1 Gb upwards. You don't have to open your computer or own a SCSI interface – it'll connect to anything from network server to portable. Its transfer speed is limited by the speed of your parallel port, and on old PCs, that could be as low as 150k per second. However, most PCs should manage about 900k/second, which is equivalent to six

speed CD transfer speeds. The DiskPlus is best suited to people such as support engineers or system builders, who regularly need to use the same set of data on multiple machines.

DEVELOPER	SUPPLIER	CONTACT	PRICE
MarkTech	MarkTech	0181 841 6711	£252.63 (1.2Gb 3.5")

For everything from quick Windows re-installs to server installations, the DiskPlus is the most convenient option.



## Zip Drive



Zip drives have had their day, but 100Mb removable storage just isn't big enough for today's applications.

With portability and convenience of a floppy disk, but many times the capacity, Zip drives have become incredibly popular recently. Although you can buy internal units, that rather defeats the object. The Zip drive is popular because you can sling the drive into your backpack, pop round to your mate's house and after plugging it into his parallel port, transfer 100Mb of data. The disks are flexible media, and are little larger than a floppy disk. They're light and robust, which makes them perfect for sending through the

post. The downside is their slow transfer speed and relatively low capacity. Their maximum speed is barely faster than a dual speed CD-ROM, whilst they're the second costliest per megabyte.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Iomega	Iomega	01628 822444	£175.08

Although convenient, their limited capacity, high media cost and slow transfer speed places Zips low down the rankings.



## SyJet



The SyJet is so fast you can actually use it for direct audio-visual mastering and live video playback.

Until the last couple of years if you worked in the publishing or graphics industry, you owned a SyQuest drive. Since then, capacities have increased and their popularity has dwindled, but with devices like the SyJet, they can easily contend at the high end of the market. Like the Nomai and D2 devices, it uses removable hard disks known as Winchester drives. However, with a capacity of 1.5Mb per disk, they're the largest disks in this round up. Because the disks are hard, they can spin much faster,

providing a maximum data transfer of 7Mb per second given that level of performance. It should come as no surprise to learn, given that level of performance, that the SyJet is a SCSI device.

DEVELOPER	SUPPLIER	CONTACT	PRICE
SyQuest	SyQuest	0131 339 2022	£332.53

The SyJet is the fastest removable storage option, and with 1.5Mb cartridges, it's also the largest.





## EZ-Flyer

At just over £200, the EZ Flyer is one of the cheaper devices in this round up. It uses 230Mb Winchester drives, enabling it to provide a data throughput of 2.4Mb per second – fast enough to compete with conventional hard disks. In every possible way, the drive seems to be a halfway house solution between Zip drives and the D2 or Nomai 540Mb units. It's cheaper than the 540Mb drives, and faster than a Zip, with storage and transfer speed that falls midway between the two. It's an external SCSI

device, which, like the other Winchester disk-based devices, is easily recognised by Windows 95. Although, its cartridges cost more per megabyte, because they hold less, your initial media outlay is lower.

DEVELOPER	SUPPLIER	CONTACT	PRICE
SyQuest	SyQuest	0131 339 2022	£211.50

The EZ Flyer is a drive that evokes no particular sentiments. It's an efficient compromise between the Zip and D2/Nomai drives. ★★★★★



If money is tight, or you need speed more than capacity, the EZ Flyer is an affordable starting point.

## Xyratex 3000

Here's an interesting alternative to the Winchester drives; an optical system capable of storing 640Mb per disk. Although it's described as an optical drive, unlike a CD ROM, it doesn't use a system of pits and grooves, instead a laser is used to make the fine mechanical adjustments required for high capacity magnetic recording. So essentially it's a glorified floppy disk! It offers a maximum data rate of 5Mb per second, which is faster than most hard drives. At less than 5p per megabyte, it's one of the

cheapest storage options available. It interfaces with your computer via a standard SCSI connector and the review model is an external device.

DEVELOPER	SUPPLIER	CONTACT	PRICE
Xyratex	Xyratex	01705 443003	£381.88

The 3000 offers a good transfer rate and a high capacity, but it's pipped to the post by the SyJet... Just. ★★★★★



At 640Mb, the Xyratex is just too small to contain an entire CD's worth of information.

### What about rewritable CD?

The ultimate form of removable storage must be re-writable CDs. For a long time, manufacturers swore that it was impossible, but Yamaha's is due out in July. The advantage of re-writeable CD is that the discs can theoretically be read on any CD player, yet the write operation is no longer a one-off process as it is with current drives. That means that you can master CDs over a period of time, adding, removing and rearranging data as the urge takes you. For back-ups, it's ideal because you'll often want to overwrite or modify out-dated archives. The drives look as if they will cost in the region of £500 or £600, whilst the media will be about £15-£20 per 650Mb disk.

### Making the right connections

Each of the drives in this round-up is available with different interfaces and the one you choose will affect the drive's performance. The slowest connection method is the parallel port, which limits you to less than 1Mb per second, and far less on older motherboards and I/O cards. However, virtually every computer comes with a parallel port as standard, so you won't need to buy an extra interface and the drives are completely portable.

EIDE devices are convenient because most people have an IDE, ATAPI or EIDE controller in their computer. However, whilst they offer a good data throughput, they're not portable and you will definitely need to open up your computer to install the drive.

The final option is SCSI. It's considerably less common, but can offer the portability of a parallel device, combined with the high transfer rate of the EIDE devices. SCSI drives may connect internally or externally, although the latter is certainly more convenient. They offer far and away the best data throughput, and you can add multiple SCSI devices to a single interface. The devices generally cost a little more, and the controllers can range from £30 to £300.

### How they compare

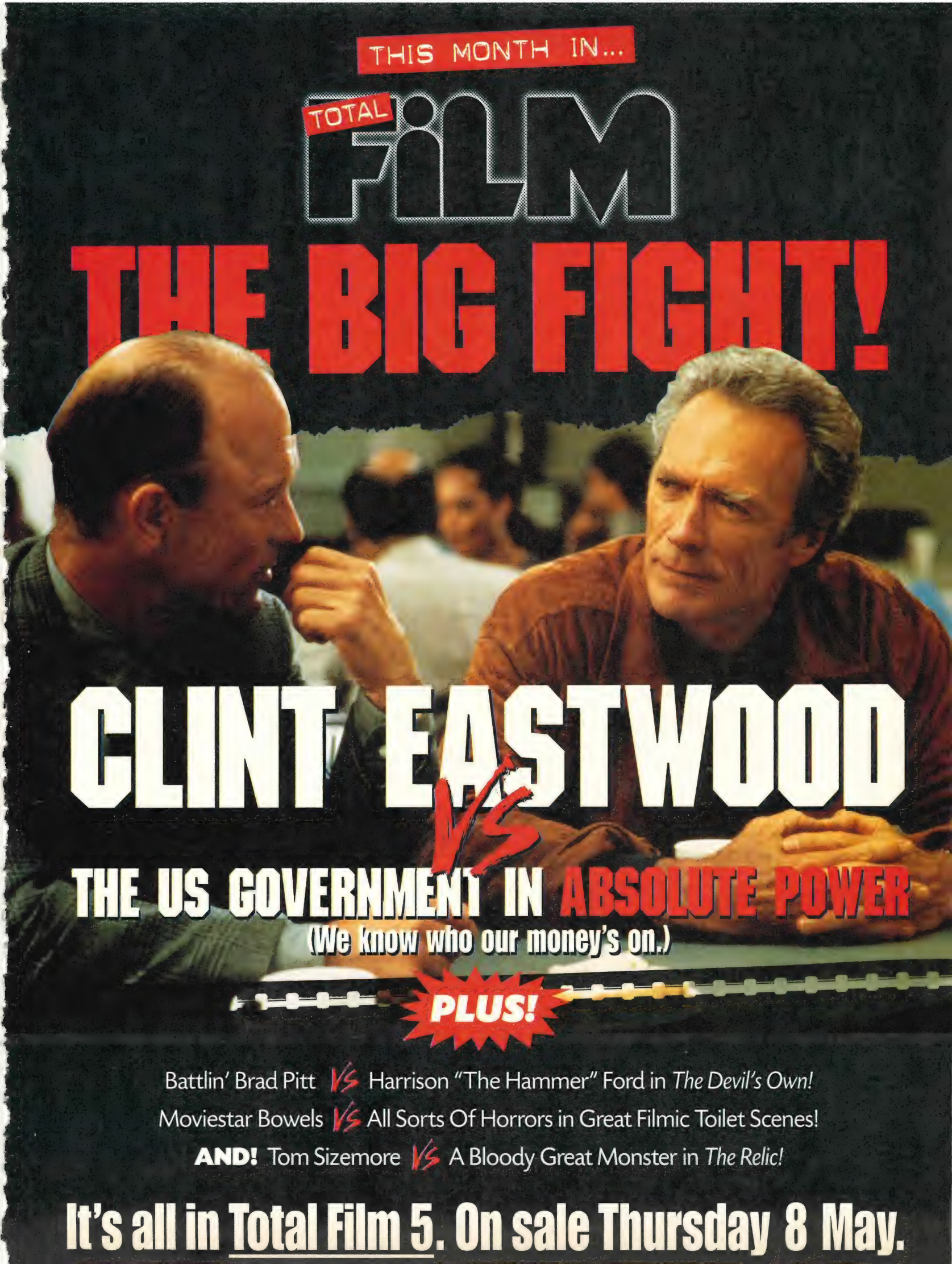
MODEL	SYJET	EZ FLYER	DISKPLUS 12	PD DRIVE	NOMAI 540	ZIP	DZ540	XYRATEX 3000
Price	£332.53	£211.50	£252.63	£292.58	£351.33	£175.08	£280.83	£381.88
Capacity	1536Mb	230Mb	1229Mb	650Mb	540Mb	100Mb	540Mb	640Mb
Max Transfer speed	7Mb/s	2.4Mb/s	800k/s	900k/s CD 1.1Mb PD	5.3Mb/s	341.33k/s	4.1Mb/s	5Mb/s
Price per Mb	5.66p	10.22p	20.56p	3.62p	8.68p	17.61p	8.60p	4.77p
Technology	Winchester hard drive	Winchester hard drive	hard drive	Magneto optical	Winchester hard drive	Flexible Magnetic media	Winchester hard drive	Optical
Interface	SCSI	SCSI	Parallel	EIDE	SCSI	Parallel	SCSI	SCSI
Internal/External	External	External	External	Internal	External	External	External	External
Score	★★★★★	★★★★	★★★★	★★★★★	★★★★	★★	★★★★	★★★★★



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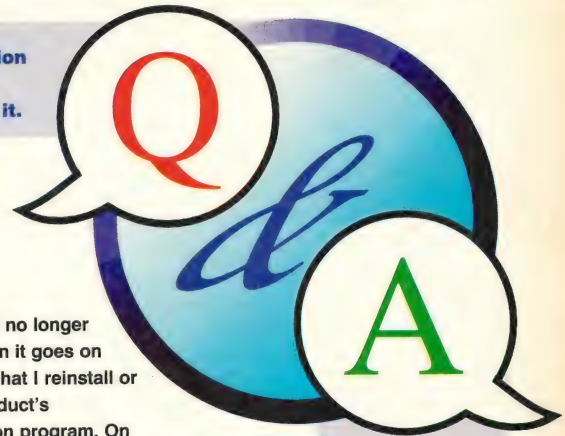
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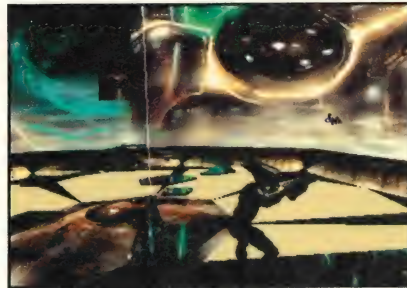
#### SLOW, SLOW SCROLL

**Q** I have a 100MHz 586, 16MB RAM and a 15-inch monitor. When I play racing style games such as *Screamer 2* and *Wipeout* I get very poor scrolling and it really annoys me. I would have thought that a PC with specs like mine would at least be able to handle games like these. The only thing I think it could be is my video memory as I only have 1MB of it, or could it be that the 15-inch monitor is causing trouble?  
Dave Doiver, Blandford

**A** The amount of video memory you have in your system doesn't affect the graphics performance, only the range of screen resolutions and colour depths you can choose from. One thing to watch out for is the resolution that the games are running in. Many games these days come with a VGA (640 x 480) or SVGA (800 x 600) mode, but to use these requires significantly more processing power than the bog-standard 320 x 200 mode. To run games as fast as possible, try choosing the lowest resolution and switching off fancy features such as texture mapping and the like.

As usual, the best route is to simply beef up your PC with a hardware upgrade. Without replacing the entire motherboard, your best options are to upgrade the processor, upgrade your graphics card and add more RAM to the system. Upgrading the processor can mean getting an Intel Pentium OverDrive chip, which now comes in a 166MHz MMX-enhanced version for your 100MHz system. Alternatively

you could buy a new real Pentium chip and replace your old one, but you should check with your manufacturer or documentation as to what clock speeds and bus speeds your motherboard supports. Buying a new graphics card which supports 3D acceleration will also help – check out the graphics card test in issue 66 of PC REVIEW. Finally, adding more RAM to your system will generally always boost performance, not only with games but with other applications too, so you should probably consider upgrading to 32Mb.



The latest 3D games put heavy demands on your PC's hardware – you may need to upgrade to play them at their best.

#### SCANNER SOFTWARE CONFUSION

**Q** I recently installed a scanner. Unfortunately the 'SICOS' installation program I used didn't work. There was no uninstallation program, so I just had to delete the files. Now every time I switch my computer on, I get a message saying "The Windows Registry or SYSTEM.INI file refers

to a file that no longer exists". Then it goes on to suggest that I reinstall or use the product's uninstallation program. On telephoning my computer manufacturer's helpline, I was told that all I could do was reinstall the entire hard drive from my master CD. Do I really need to do that?  
Dominic Osborne, via the Internet

**A** You'll be pleased to know that you shouldn't have to reinstall your entire system, but you will have to do a little detective work to sort out this situation. The basic problem is that your uninstallation of the scanner software didn't quite remove all traces of it from your system. As the message you're getting suggests, some of the files installed by the installation program are still referred to in some of Windows' configuration files.

Open your SYSTEM.INI file (which you can find in the Windows directory on your hard disk) in a text editor such as Notepad, and look through for anything that looks as though it refers to the old scanner software. So what should you look for? Well, see if there are any references to files or directories that were installed by the scanner installation program. If you can't remember where the scanner software was installed on your machine, it may be worth running the installation program again to check where it puts things. Failing this, look for any lines with 'sicos' in or any variations of that word, such as 'sico1234.drv'. You should delete

#### CHANGE OF NAME

If, like me, you bought a PC which already had Windows 95 installed, you may find that the system said it was registered to 'z' or something. There's an easy way to change this. It involves using the Registry Editor. From the Start Menu go to 'Run' and type in 'regedit'. Then go to HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion. In the right side of the registry editor you should find a name called RegisteredOwner. Now to change this, right click it and select 'Modify'. Just type in whatever you want it to be registered to.

Chris Buckley, via the Internet

#### HACKING AWAY

Microsoft's Kernel Toys for Windows 95 is a collection of small programs which perform a variety of low-level system tricks. Cousins to the better-known Power Toys suite, the Kernel Toys are available to download from Microsoft's World Wide Web site, <http://www.microsoft.com/>. Go to the section for downloading free software, and look for the Windows 95 shareware and utilities section. The whole Kernel Toys set is only 57KB to download, so they're well worth a look if you're interested in fiddling with Windows 95's nooks and crannies.

Since the Kernel Toys were developed by Microsoft's Windows 95 kernel team they're a bit lacking in the user friendliness department. You'll have to read all the accompanying documentation carefully to get the most out of them. One of the most useful among them is a version of the UNIX 'top' program, which gives you a constantly updated view of exactly what's

running on your system, along with the percentage of the CPU time that each process is using.

Other tools include a program for tracking exactly how your system's conventional memory is being used and an addition to your keyboard Control Panel which allows you to pretend you have special Windows 95 keys on

your keyboard even if you don't. The rest of the Kernel Toys is made of a couple of utilities for making your use of MS-DOS mode easier, and a program for editing the Windows 95 time zones, should the urge take you.

The WinTop Kernel Toy gives you a constantly updated view of what programs are using your precious CPU time.

Process	View	Help				
Program	% CPU	CPU Time	Threads	Type	Path	
Idle	68.8...	6:31	1	32-bit 4.0	Idle	
KERNEL32.DLL	0.7...	0:03	3	32-bit 4.0	C:\WINDOWS\SYSTEM	
MSGSRV32.EXE		0:26	1	16-bit 4.0	C:\WINDOWS\SYSTEM	
MPREXE.EXE		0:01	1	32-bit 4.0	C:\WINDOWS\SYSTEM	
mmtask.tsk		0:00	1	16-bit 4.0	C:\WINDOWS\SYSTEM	
EXPLORER.EXE	4.7...	0:25	7	32-bit 4.0	C:\WINDOWS\EXPLORE	
SYSTRAY.EXE		0:00	1	32-bit 4.0	C:\WINDOWS\SYSTEM	
QUICKRES.EXE		0:00	1	16-bit 4.0	C:\Program Files\Accesso	
TZEDIT.EXE		0:00	1	32-bit 4.0	C:\TEMP\KERNELTOYS	
WINWORD.EXE		0:12	1	32-bit 4.0	C:\MSOFFICE\WINWOR	
WINTOP.EXE	1.8...	0:11	1	32-bit 4.0	C:\TEMP\KERNELTOYS	
CLIP.EXE	23.8...	0:02	1	32-bit 3.1	C:\PROGRAM FILES\CLI	



## FLIGHT SIM FOIBLES

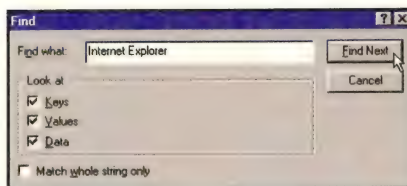
The following tip might be useful to those of your readers who regularly install 'freeware' scenery in Microsoft Flight Simulator 5 or 5.1. The procedure you are told to follow is: 1. Enable the scenery menu (choose scenery library) 2. Click on 'scenery area files' 3. Click on 'add' 4. Click on box to blacken and type: path\name of scenery\scenery\\*.bgl. A problem arises when you are using a UK English keyboard as, instead of backslashes '\', you get a curved bracket ')' and, if you type in the line leaving the brackets you get a message saying 'you have not used a backslash to separate path, etc.' I thought the UK English keyboard may be the trouble and pressed every key on my keyboard to see if one gave you a backslash. One does – in fact it was about the last one I had left to press. The key is the 'tilde' or '~'. Use this and you'll have no further trouble.

Terry Hollings,  
Bere Regis

any lines that look suspicious (it's well worth making a backup of the SYSTEM.INI file in case of accidents).

As far as the Windows registry goes, you should fire up the Registry Editor (click Run in the Start Menu and enter 'regedit') and search through for 'sicos' or other related words. Use the Find command in the edit menu to search all the keys, values and data in the registry for scanner-related items and delete them. As before, you should make a backup of the registry files, SYSTEM.DAT and USER.DAT in the Windows directory. You should also check your system startup files CONFIG.SYS and AUTOEXEC.BAT to see if they make any references to the scanner software.

However, you must bear in mind that this method cannot guarantee that you'll cure the problem you have when you start your PC. If all else fails, and you really want to get rid of the problem, reinstallation of Windows should do the trick.



Searching through the Windows 95 registry can help you track down unwanted references to useless applications.

## INVASION OF THE CHK FILES

**Q** Whilst looking through my root directory I keep finding files named "file0001.chk", "file0002.chk", right up to number 13. They seem to be breeding, taking up 32,768 bytes each. Help me, I'm being taken over by CHK files that I daren't delete!  
Gary Wadforth, via the Internet

**A** Don't panic! These CHK files are generally produced by a disk checking program such as CHKDSK or SCANDISK in MS-DOS or ScanDisk in Windows 95. All of these programs do basically the same thing, namely scanning

your disk for errors and inconsistencies which can lead to lost or corrupted files. ScanDisk is the preferred program, since it is able to detect more problems than CHKDSK.

The CHK files created in your root directory are the result of CHKDSK or ScanDisk finding 'lost' file fragments on your hard disk. In this instance, lost means that the system cannot determine from which file the lost data came. The scanning programs simply dump the data into new files which they create (called 'FILExxxx' or 'FILExxxx.CHK') so that you can examine them yourself.

You don't say which operating system you're using, so you'll have to check to see which of these programs you may have used. If you can't recall running them yourself, see if they are started automatically when you boot your machine. Look in your AUTOEXEC.BAT file or your Windows Startup folder. Alternatively, if you're running Microsoft System Agent, found in the Windows 95 Plus! Pack, it may be starting ScanDisk for you automatically. In any case, it is

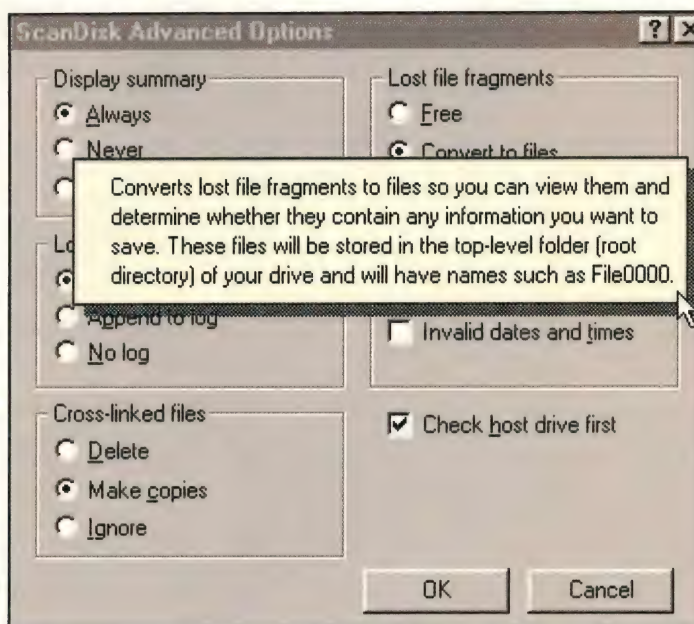
perfectly safe to delete the CHK files, though it may be worth having a look at them in a file editing program first to see if they contain anything that you'd want to keep.

**Windows 95's ScanDisk program will put lost file fragments it finds on your disk into new files in your root directory.**


## PROMPT PLEASE

**Q** Is there any way to change the default MS-DOS command prompt? I'd like to make it more interesting, if possible.  
Nigel Rees, Derby

**A** The PROMPT command in MS-DOS will do the trick for you. In its basic form, you just type PROMPT followed by the text you want to appear as your command prompt. You can insert special characters pairs, all starting with a dollar sign, in the text to get more useful information into your prompt. For example, \$t will get replaced by the current time, \$d by the date, \$p by the current drive letter and directory and \$n will be replaced just by the current drive letter. Special characters you can specify include \$g and \$l, which produce greater-than and less-than sign, respectively. \$e will produce the ESC (escape) character, which is useful if you want to use ANSI escape sequences in your prompt to get special effects, such as colour changes. Running PROMPT on its own



## KNOW YOUR BIOS

 The BIOS (Basic Input Output System) is the part of your PC that kicks it into life when you first turn it on. It is a small bit of ROM (64K or sometimes 128K) that contains programs to perform memory and system checks (known as POST, Power-On Self Test) and to start the boot process of loading your operating system.

Your BIOS announces its presence by printing its name and version number on your screen when you turn your system on. In addition, the BIOS provides small routines to enable your software to access your floppy disks, hard disks, serial ports and so on. These days many operating systems bypass this aspect of the BIOS to gain greater performance.

However, the configuration of your BIOS is still essential to your PC, and you may need to change it when you add a new bit of hardware to your system (usually a new disk drive). The

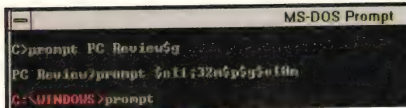
BIOS stores a number of configuration settings in a small battery-backed bit of RAM called CMOS RAM. These settings are preserved when your PC is turned off. To change your BIOS settings, you generally have to run the BIOS setup utility, which you do by pressing a certain key combination when your PC is starting up (the keys to press are almost always displayed on screen, but if not check your manual). Once into the BIOS setup

program, you'll see a bewildering array of options, including settings for your disk drives, system clock, system password and memory configuration. It is well worth having a browse through the settings, and even making a note of your current set in case you ever need to reset them. Your PC manual should be able to guide you in understanding what all the settings mean, but for additional help check out the BIOS survival guide on the web at [http://www.lemig.umontreal.ca/bios/bios\\_sg.htm](http://www.lemig.umontreal.ca/bios/bios_sg.htm).

Your PC's BIOS is essential to its operation, and it is well worth getting to know it.







The MS-DOS command PROMPT is for changing your MS-DOS command prompt.

resets the prompt to a default of the current drive letter followed by a greater-than sign. Type 'HELP PROMPT' to get full details of how to use the command.

#### COLORADO COMPATIBILITY

**Q** I was given a 250Mb Colorado tape backup system for Windows. Is it compatible with my Packard Bell 16Mb RAM 850Mb multimedia machine using Windows 95? If so, can I use a floppy disk to install in Windows 95?

Leonard Wren, via the Internet

**A** First a general note about asking questions. It helps us answer your queries if you give us as much relevant information as you have available. This includes the manufacturer and exact model name and number of hardware, plus information about any software supplied, names, version numbers and so on. Colorado tape drives are made by Colorado Memory Systems, which is a subsidiary company of Hewlett-Packard. They used to make two 250Mb tape drives, the Jumbo 250 which connects to your floppy disk controller and the Trakker 250 which connects to your parallel port – you don't say which model of drive you have been given.

Like most major hardware manufacturers, HP has an enormous volume of technical support information available on its World Wide Web site, <http://www.hp.com/>. There is a section devoted to tape drives, which you can find at <http://hpcc997.external.hp.com/isgsupport/cms/cms.html>. You should be able to download software appropriate to your tape drive. All you'll probably need is the latest version of the Colorado Backup program for Windows 95, for which there is a small charge. You may have to get in touch with HP's technical support department on 0171 512 5202 for more details regarding obtaining the software.

If you end up stuck with an old piece of hardware, you may still find information about it on the manufacturer's web site.

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## SCINTILLATING SEARCHES



As many of you have probably discovered, the Internet has an enormous amount of data stored in its millions of computers. This is all well and good, but the problem of actually finding the information you're after remains unsolved. Search engines, which maintain indexes of the contents of millions of Web pages, go some way towards helping you find what you want. One of the most popular search engines is Digital's Alta Vista at <http://www.altavista.digital.com/>. Powerful though it is, Alta Vista is not much use if your queries always return hundreds of thousands of matching pages. Here are some tips on composing queries for Alta Vista, making use of some of its special features.

The basic query is simply a list of words, all in lower case. This will look for pages containing as many of the words given as possible, with any capitalisation. If you specify words with capital letters in, they will only match words with exactly the same combination of lower case and capital letters.

To group words into a phrase place double quotes around them. For example, if you specify two words, 'pc' and 'review' as your search, Alta Vista will find documents containing those words anywhere and in any order. However the phrase 'pc review' will only match the words next to each other in that order.

To narrow things down, you can put a plus sign immediately before a word or phrase to tell Alta Vista that any documents it returns must include it. A minus sign does the opposite. For example, the query +pc +review -pc zone' will find pages with the words pc and review in them, but without the phrase 'pc zone'.

Finally, you can use the asterisk to represent from zero to five unknown lowercase characters. Thus, a query of comput\* will match the words computer, computers, computing and so on. Also, the query colo\*r will find both color and colour.

More help on these simple queries is available on Alta Vista's site, and you should also check out the advanced query mode, which gives you even more flexibility.

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Search  and Display the Results

Tip: To find good food in Chicago try: pizza "deep dish" + Chicago  
The plus sign before a word means that the word MUST appear in the document.

Alta Vista is one of the Web's largest search engines, but you need to know the ins and outs of queries to make the most of it.

#### TWIN FILENAMES

**Q** I would like to be able to tell if two files are identical or not. I can have a look at their sizes, but obviously this is no guarantee that the files themselves are the same. Is there any way to tell?

Truman Hardy, Chichester.

**A** MS-DOS provides a solution for this one. The FC command is for comparing two files, either ASCII text files or binary files. By default, FC will compare two text files, displaying any lines that are different. Just run FC FILE1.TXT FILE2.TXT and see what happens.

To make a binary comparison, use FC followed immediately by the /B option: FC /B PROG1.EXE PROG2.EXE. If the two files being compared are identical, FC will display the message "no differences encountered". There are numerous options you can give the FC command, most of which are concerned with the treatment of text files. Type 'HELP FC' at the DOS 6.x command prompt to get more information.

#### QUICK FORMAT

A few days ago I decided I needed to reformat quite a few of my floppy disks. It was then that I discovered the 'Quick Format' option in Windows 95. This is much quicker than a full format, but it only works on disks that have already been formatted. All you need to do is right click on the 'Drive A' icon, pick 'Format' and then make sure the 'Quick Format' option is selected. It's a great time saver! However, if you want to really make sure that all the data from the old disk is erased, it's best to do a full format.

Todd Bridges, Nottingham



## COPY TO FLOPPY

Here's a quick tip for when you want to easily copy a file to your floppy drive in Windows 95. All you need to do is right click on the file (either in the normal directory window or in Windows Explorer), go to the 'Send To' command. A small menu will pop up. Then pick the floppy drive option (it's usually at the top of the list) and the file in question will be copied onto the floppy disk.

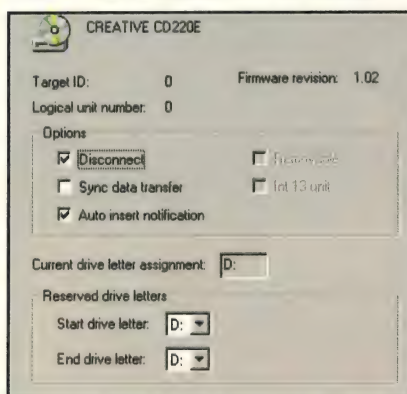
Simon Jones,  
Bristol.

## NO MORE AUTO PLAY

**Q** I'm finding that the Auto Play feature of Windows 95 is becoming increasingly annoying. For example, some game CDs I have always automatically run their setup programs whenever I stick them in, plus the Windows 95 CD comes up with its start window all the time. While this is quite clever and entertaining the first few times, is there any way to turn it off?

Simon Wilkinson, Melton Mowbray.

**A** There is a way to turn off Auto Play in Windows 95, the feature that automatically starts playing CD-ROMs and audio CDs when they're inserted. Go to the Windows 95 Control Panel and double-click the System icon. Click on the tab labelled 'Device Manager' and double-click the CD-ROM item. Then double-click the name of your CD-ROM drive, and its Properties box will appear. Click the 'Settings'



If Windows 95's Auto Play feature is driving you crazy, have it disabled with the System Control Panel.

tab and finally deselect the checkbox labelled 'Auto Insert Notification'. Click OK, and from now on the Auto Play feature will be disabled. Additionally, you should be able to temporarily disable Auto Play by simply holding down the [Shift] key on your keyboard as you insert a CD.

## JAVA SECURITY

**Q** The media are always harping on about the latest security problem with the Internet and Java applets and all that. But when it comes down to it, is there really anything for a home PC user to be worried about? I'm just a casual user of the WWW, looking at pages of interest, pictures for example. Should I be concerned?

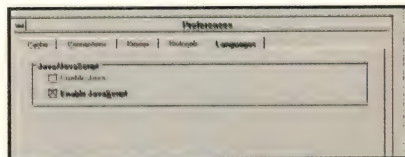
MP Hodges, Norwich

**A** For the uninitiated, Java applets are programs that you can download from the Internet using your Web browser and then run within your browser's window. Java applets are written in a language called Java, and the two most popular Web browsers, Netscape Navigator and Microsoft Internet Explorer, can both display applets embedded within Web pages. The designers of Java went to considerable lengths to try to ensure that applets you download cannot do any harm to data stored on your PC, but there have been examples of malicious applets being able to delete files from your hard disk, for example. Generally, though, the browser manufacturers are quick to respond to such problems, and you should be at little risk if you're using the very latest version of your web browser (3.01 for Navigator and 3.02 for Internet Explorer).

In many respects the problem with applets is similar to that of computer viruses. It all comes down to being able to trust the source of the software, so if the applet you're downloading comes from a 'reputable' Web page, you're likely to be alright. If you have any doubts, the best course of action is simply to disable the Java functionality of your browser, using the Preferences or Options menus.

You should be aware that there are other forms of programs that can run in your Web browser. ActiveX components are Microsoft's equivalent of Java applets, but unlike Java they currently only run on machines with Intel processors which are running Windows.

Additionally, ActiveX doesn't offer any restrictions as to what an applet can actually do to your machine (for example, shutting it down). A recent demonstration in Germany showed a downloaded ActiveX applet transferring money from one bank account to another by running the user's copy of Quicken. There are also scripting languages, such as JavaScript and VBScript, whose code is embedded in the HTML page itself. Browsers have controls to prevent execution of such scripts, if desired.



Use Netscape Navigator's Network Preferences window to disable Java applets and JavaScript scripts.

## EASY FTP

**Q** When using Netscape as an FTP client, it always seems to try to log in as anonymous (ie if I was using Windows 95's FTP program I'd type 'anonymous' or 'ftp' when asked for my user name).

Is there any way to use Netscape with a different username and password?

Terry Banford, Hutton Cranswick.

**A** You can incorporate either just your username or both your username and password into the FTP URL (ie the ftp:// address) you give to Navigator. For example, if your account is called 'bob' and your password is 'abc123' you can go to the following URL: ftp://bob:abc123@ftpsite.com. This will log you in as 'bob'. Alternatively, if you specify this URL: ftp://bob@ftpsite.com, Netscape will ask you for your password when it tries to connect to the FTP server.

The obvious advantage of the second method is that your password doesn't get displayed on screen.

## DRIVING YOUR RAM

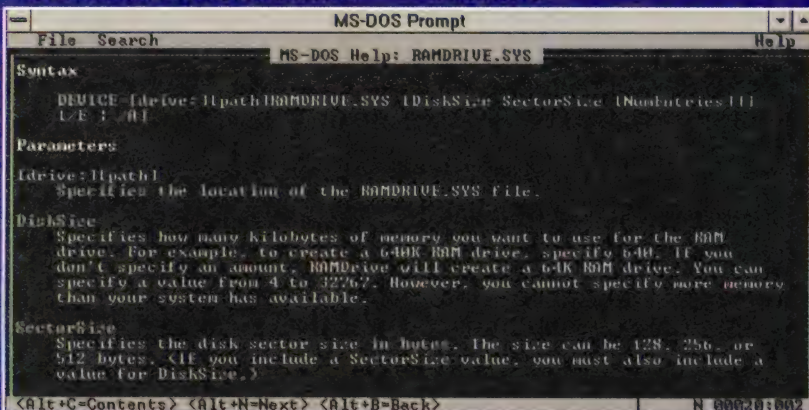


MS-DOS allows you to create 'virtual', high-speed disks in memory, called RAM disks. The advantages of using RAM disks is that they are much faster than hard disks and your programs can use them in exactly the same way as they would a physical disk drive. Of course the big disadvantage is that since RAM disks exist only in your PC's memory, their contents disappear when you switch off. Nevertheless, RAM disks can be a significant performance booster, when used by programs that create a large number of small, temporary files. In fact, you can set your TEMP environment variable to point to a directory on the RAM disk so that many programs will use it automatically.

To set up a RAM disk in MS-DOS you need to add a line to your CONFIG.SYS file. To set up a RAM disk of 4MB that uses part of your extended memory, add the following line somewhere after the line that loads HIMEM.SYS: DEVICE=C:\DOS\RAMDRIVE.SYS 4096 /E. If you want to make

the RAM disk use expanded memory, you must load EMM386 (or similar) and replace the /E option with /A. If you don't specify the type of memory to use, RAMDRIVE will put the RAM disk in conventional memory, which you will probably realise is not a very good idea. You can also use DEVICEHIGH instead of

DEVICE if you want to load the RAM disk driver into the upper memory area. The drive letter used by the RAM disk will be the next available one in your system, so if you only have a C: drive, the RAM disk will be D:. You can create multiple RAM disks by repeating the line in CONFIG.SYS.



Creating an MS-DOS RAM disk and setting TEMP to point to a directory on it can speed up some applications.



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How to...

# MAKE YOUR OWN MULTIMEDIA



In the final part of our three-part tutorial on making you own multimedia single you'll be stepping into the world of video with indie-rock band 37's 'Into the Sun'.

**AND HERE'S ONE WE MADE EARLIER...**

If you want to cheat then load up the file SUN2.MD8 using Medi8or to see the finished version.



**JUST JOINING US?**

If you missed the last two multimedia tutorials then you'll find them in an interactive form on our disc in the Multimedia section of the menu.

With the possibilities offered by mixed media CD-ROMs (or 'enhanced CD' as they are starting to be called) it's impossible to believe that the humble music CD will stay the same forever. We reckon it won't be long before almost every CD you buy has an interactive element of some sort. Look at 'Demonstration' from the Filter Queens on this month's CDREVIEW for an example of a band that are working in an interactive medium right from the start. Bands riding high on this new wave of interactivity now will be the ones to look out for in the future. In PCREVIEW we're taking you into the future of music. If you've been following our tutorials over the last two months then you'll have been building up your own interactive single for the song 'Into the Sun' by Bath-based band 37. Using the fully-working Medi8or Entrée 3.0 multimedia authoring software (which you'll find in the Multimedia section of our disc) you've added sound, text, graphics and animated hotspots. This month we'll be finishing the single off by adding video. The most powerful tool in any band's

promotional arsenal is the pop video. Careers have been launched on the back of a good video, and it can often make the difference between a single's ride up the charts or its slip into obscurity. 37 have wasted no time in producing their own. Directed by multimedia designer Wendy Smith, it's a stunning visual feast, which adds a whole new dimension to their song.

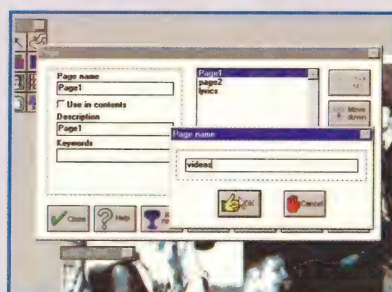
With Medi8or video is simple. As you'll discover it treats this potentially troublesome medium as just another object on a page, in the same way it would a piece of text, or a graphic. You simply draw a video box and it appears on the page. Once that's done you can move it around and resize it to your heart's content.

Videos on the PC tend to be in either one of two formats, Video for Windows or QuickTime. Video for Windows is the standard format for Windows. File names for videos of this type end with a .AVI extension. Windows 95 is able to play these sorts of videos without any extra drivers being installed. QuickTime is the default format for Apple computers. The advantage of using QuickTime is that the video can be played

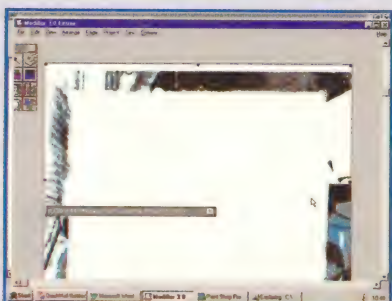
on both a PC and a Mac (providing QuickTime for Windows has already been installed on the PC). The 'Video for Into the Sun' is in QuickTime format, so if QuickTime for Windows isn't already a part of your system then go to the Essentials section of our disc and install it. Before starting the tutorial also make sure you're running Windows in more than 256 colours, otherwise the video colours will look strange. You'll find all the files you'll need for the tutorial are in the 37 directory of the disc.



## Video killed the radio star...

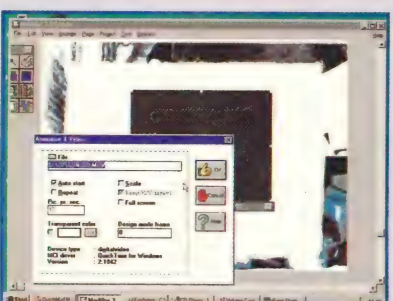


**1** Open Medi8or and load up the project you created last month, or open the file SUN2.MD8 to use one we've created earlier. The first thing we need to do is create a new page for the videos. Press [F8], make a new page and call it 'Videos'. Change to the new page.



**2** We need to add our standard background next. Open a picture box with the dimensions x:81, y:92, b:822 and h:623 and load in the file BACK2.PCX. Make sure you tick the Keep Size box.

**3** The next stage is to add the video. It's surprisingly easy to do. Just select the video icon from the Tool Box and draw a video box in the middle of the screen with the co-ordinates x:320, y:239, b:380, h:295. You'll be asked to choose a video file. The 'Into the Sun' video is in QuickTime .MOV format Next you need to open the file SUN320.MOV. Click on File. MOV files are QuickTime files. Medi8or, by default looks for Video for Windows AVI files when you select a video. To select MOV



files go to the List Files of Type box and select All Files, then double click on the SUN320.MOV file from the list. Make sure the Auto Start and the Keep XY Aspect buttons are ticked, but not the Scale button.

**4** The video box will appear as a blank box on the screen. The Auto Start button was ticked so that as soon as you enter the page the video starts. To complete the page we need to add a button to take you back to the main menu. Draw a button underneath the video and double click on it. Enter the text 'Main Menu' into it. Right click on the button and select the events menu. Choose Mouse Click as the action and Turn Page as the event, just like you did in last month's tutorial. Select Page

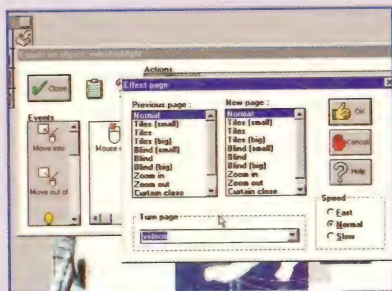




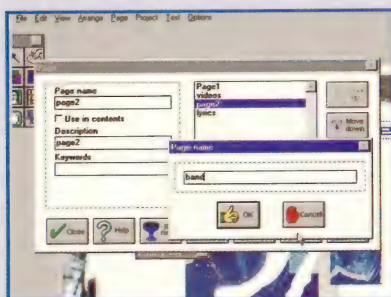


2 to turn to. You can test the page out now, and watch the video, by pressing the [F6] button. When the page starts the video will play, and when you click on the button you'll return to the main menu.

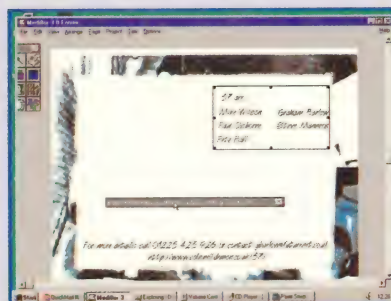
- 5** The video looks great, but we're not going to rest on our laurels. Back on page 2 we need to make a link to the new Videos page. Right click on the Videos hotspot and link it to the Video page using the Events menu.



- 6** The final page that needs to be created is for The Band hotspot. This page is going to have contact details and a couple of small video interviews. Hit [F8] and make a new page called Band. Change to that page and load in the background, like you did in step 2.

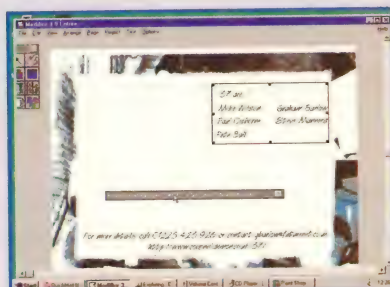


- 7** Next we're going to add a couple of graphics. Make one picture box in the top right corner and make another along the bottom of the page (see the picture for this step). Load in the files NAMES.PCX and CONTACT.PCX into the top and bottom picture respectively. You can also create a button to take you to the main menu, as you did in step 3.

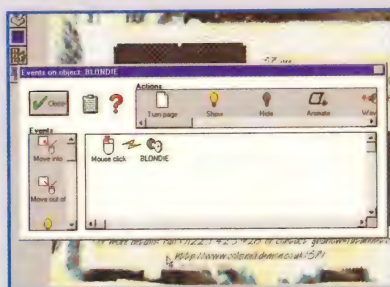


- 8** We'll add the videos now. Unlike before we won't have them auto start with the page. Using the Events menu we'll get them to start when you click them. First create two video boxes (as in the picture for this step) and load the

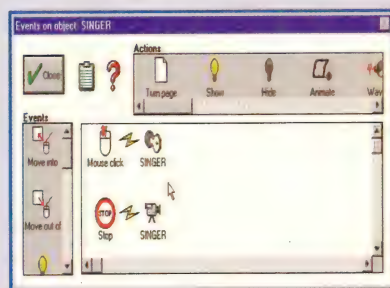
videos BLONDIE.MOV and SINGER.MOV into them. Make sure you haven't ticked Auto Start.



- 9** Now we'll get the video to start when you click it. Right click on BLONDIE.MOV and select the Events menu. Select Mouse Click as the event and Start as the action. Choose the object BLONDIE.MOV to start. Do the same for the other video then press [F6] to try it out. You'll see that when the video is clicked it will start.

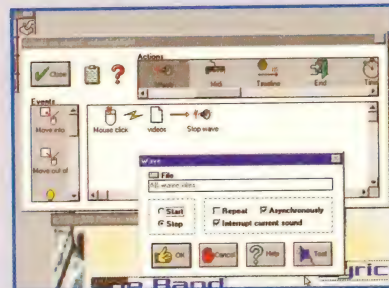


- 10** Unfortunately, you'll find that when the video has played through once it won't play again. To rectify this we need to reset the video frame back to the start of the video once it's reached the end. Go to the Events menu for the BLONDIE video and add the event Stop and the action Video Search. Select the video Object BLONDIE and choose frame 0. The Stop event is called whenever the video reaches the end. Now, when the video stops it will reset to frame 0. You can test this out now if you like. Repeat the procedure for the SINGER video.

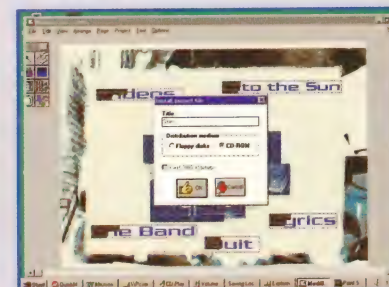


- 11** We'll just add the finishing touches now. Go back to page 2. Link The Band hotspot to the Band page using the Events menu, like you did in step 5. It's possible that the user listens to the song, and before it has finished wants to watch a video, unfortunately PCs only have one sound channel, so you need to stop any

sounds playing before the user watches a video. To do this add the action WAV to the Events menu for clicking on The Band and Videos hotspots. Make sure Stop is clicked.



- 12** Your interactive single is now complete! It's time to make a runtime version. Before you do this it's wise to check the project for errors. Press [F7] to do this. If you get any errors then it's more than likely that you've got the same name for two or more objects. Simply rename one of the objects to fix this. Choose InstallMaker from the file menu. You can compile your work for use on floppy discs or CD-ROM. Just follow the default options through and you'll create a version of the single that will work outside of Medi8or.



We leave 37 here and wish them every success in their musical career. We hope you've enjoyed creating your own multimedia single, and we also hope it's inspired you to create your own multimedia projects. Medi8or is so flexible that it can be used to make virtually any type of multimedia application. Our multimedia single is just one of the many varied uses it can be put to.

If you'd like to upgrade to the full version of Medi8or, which has more powerful features than the Entrée version you're using here, then PCREVIEW has a special offer. You can upgrade from Medi8or Entrée to Medi8or professional for only £150 (normal price £175). To order just print out and send off the MWORDER.TXT file you'll find in the MULTIMEDI8OR directory on the disc.



## CONTACT 37

You've heard their song, you've watched their video, and you've read their lyrics. 37 claim among their influences RadioHead, The Verve and The Cure. Here at PCREVIEW we love them. They've got gigs lined up all around the country, so if you see them playing in your town get down there and check them out. You won't be disappointed. Contact gbarlow@futurenet.co.uk or phone 01225 423 926 for more details. Web address <http://www.colsnell.demon.co.uk/37/>

## NEXT ISSUE

You'll be adding video clips of the boys playing their song, and being interviewed. You'll also be turning your presentation into a stand-alone application.

## CD REVIEW

On the disc is a working version of Medi8or Entrée 3.0, which you'll need to follow this tutorial. All the files you'll need are in the 37 directory on our disc. Also check out the Filter Queens 'Demonstration' which shows off what enhanced CD can do.



How to...

# TURN YOUR PC

**Adding a TV tuner card to your PC is easier than you think. We show you how it's done and pinpoint the problems to look out for...**

**T**here's something undeniably neat about having television running in a window on your desktop. It might seem like frivolous fun, and it won't increase your PC's productivity, but it's not an entirely useless upgrade idea either.

Basically, having a TV on your desktop saves you running into another room or looking away from your screen every time something comes on that you want to watch. If you're typing a letter just as the theme tune to EastEnders starts playing, the show is just a mouse click away. Likewise, you may want to keep up with the score of a crucial World Cup qualifying match while checking your emails. If it's live, you can have it playing in the corner of the screen. If not, many TV tuner cards include a Teletext feature so you can follow the match in that time-honoured fashion.

If you're worried about the picture quality you'll get with a TV signal on your PC, let us assure you: the video's far better with a TV card than it is from any CD-ROM or Web site download. Indeed, just as with the television in your living room, the quality of the image depends directly on how well you're receiving the signal.

Furthermore, contrary to popular belief, your desktop TV isn't restricted to a postage stamp-sized window. You can watch full screen if you want, or resize the window according to preference. Some TV cards, like the ATI TV we used in this tutorial, even let you scale the picture vertically and horizontally. If you like, you can stretch the head of Peter Sissons across the full width of the screen and he'll still be there reading the news.

Best of all, perhaps, at under £100, a TV card is

cheaper than a portable television. So if you've got a PC, adding a TV card could be a more economical option than buying a new set.

## CHOOSING A TV CARD

There are numerous types of TV tuner, the majority of which come in the form of stand-alone, internal cards. These can be difficult to set up, so we recommend you look for a daughter-board card, or at least one designed specifically to work with your graphics card. We chose an ATI Tuner for this tutorial because we have an ATI graphics card.

Daughter-board cards are the best type because they operate, in a sense, by piggybacking on your existing graphics card, so there are no interface leads to worry about, there's no restriction on the number of colours your graphics card can

## TV at your finger tips

The New Adventures of Superman entertains us on our new super-powered PC. (That funny-shaped black thing on the left is a powered TV aerial, if you were wondering. Some people will do anything to get Channel 5.



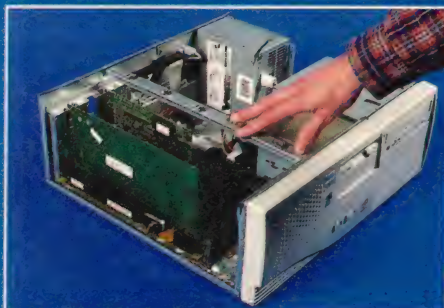
## About our TV tuner

As our PC contains an ATI 3D Xpression graphics card, we decided to use the ATI TV tuner for this tutorial. We recommend you do the same if you have an ATI graphics card. Here's a list of the nifty things we can do with our ATI tuner:

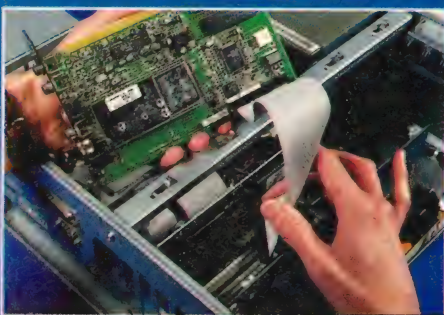
- Receive all the main terrestrial channels using an aerial.
- Select portions of the picture using the mouse, and magnify them in real time with no glitches.
- Grab still images from TV and save them as BMP files. (The quality's not great, mind.)
- Get information on Teletext.
- Scale and stretch the picture to any size.
- Capture TV broadcasts and save them as AVI video files.
- Feed in Composite and S-Video inputs from a VCR or video camera.

**You can get an ATI TV tuner card for £77.55 from Dan Peripherals on 0181 830 2492.**

- 1** Open up your PC, making sure you ground yourself by touching a large metal object before you handle any of the internal components. You've probably heard all this before, but electrical charges in your body can damage sensitive components inside your machine – so beware.



- 2** The ATI tuner connects to our 3D Xpression graphics card via an ATI Multi Channel connector ribbon. Firstly we have to attach one end of the ribbon to the tuner and the other to the graphics card, making sure we're pushing the plug in the right way up.





# INTO A TV

display and they don't take up an extra ISA slot.

Some of the older third party stand-alone cards connect to your graphics card via the VESA feature connector (not to be confused with a VESA motherboard slot). Because the data throughput of this connector is low, you may find that although you can watch TV in full colour, you can't use more than 256 colours for the rest of your Windows display. Such cards should be avoided.

A better alternative is to choose a card that connects to your graphics card via an external lead. Such a lead feeds your graphics card signal into the tuner, which overlays the TV picture and outputs the combined image to your monitor.

In theory, installing a TV tuner card should be simple, but one factor often conspires to make it anything but: video

capture. In order to perform video capture your TV card requires specific resources in your PC. Unlike sound cards or MPEG boards, which aren't fussy about which resources they use, many video capture systems need specific memory addresses. These work differently on machines that have more than 16Mb, especially under Windows 3.1. The only solution may be to add an exclusion line to your CONFIG.SYS file that specifically reserves the required memory address for your TV card. Pay careful attention to your card's installation instructions to minimise the risk of problems.

If you own a VideoLogic graphics card with a VMC connector, you can use the Captivator Pro TV card, which is designed specifically to work in conjunction with VideoLogic graphics cards. In the near future, Matrox Mystique owners will be able

to purchase a TV tuner for their cards too.

Perhaps the easiest card of all to fit, is the AV-Mate, it's also one of the most powerful. The AV-Mate is unique because it attaches to your computer externally, so there's virtually no installation involved and it will co-operate with any graphics card. Better still, it comes with a remote control and speakers, and it's one of the few, if not the only, card to work in stereo.

It's also worth taking a look at the WinTV range from Hauppauge. They're specialists in TV tuner cards and cover every part of the price and performance spectrum. Again, their cards should work with all graphics cards, and at the bottom of the range, they do dedicated tuners, whilst further up, the cards also offer video capture, AVI and Quicktime movie acceleration and even MPEG playback. (GW)

## OUR TEST PC

The PC used in this upgrade tutorial is a Merotec P166MMX with 16Mb RAM, a 1.6Gb hard disk, eight speed CD drive, Sound Blaster AWE32 sound card, ATi 3D Xpression video card and 17-inch monitor. To get your hands on a similarly magnificent collection of hardware widgets you could do worse than ringing Merotec on 01792 772111.

## CAN I UPGRADE?

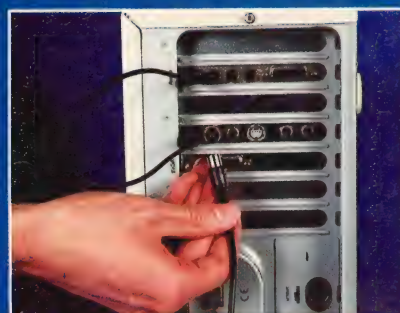
The kind of TV tuner you buy will depend on what kind of graphics card you own. Before you flash the cash, make sure whatever you buy is going to be compatible with your card. Otherwise, you'll need a 486 or Pentium with 8Mb RAM running Windows 3.1 or 95, a VGA monitor capable of at least 256 colours, a quad speed CD drive (for MPEG playback) plus a sound card and speakers. If the card you choose is not a daughterboard for your graphics card, you'll also need a free 16-bit ISA slot.

**3** Hopefully, you have a free 16-bit ISA slot next to your graphics card.

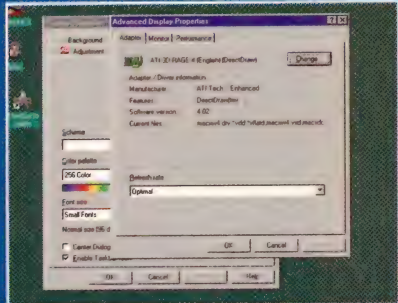
Luckily, we did. Hence we can remove the metal slot cover round the back, insert the card and screw it to the frame. When installing a card, make sure you push it in firmly and straight.



**4** Now you can close your PC. As our ATi tuner doesn't exchange data through the motherboard (it only takes power from it), we have to connect the tuner to our sound card via an external lead. It's also time to plug in the aerial or cable.



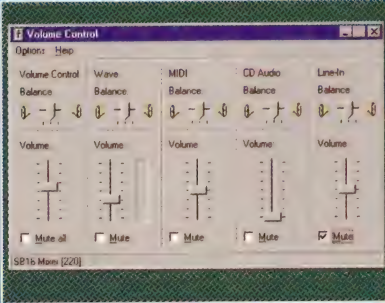
**5** With your PC up and running again, you can install the drivers for your tuner. This can be tricky if the tuner is actually driven through the graphics card as is the case here. Instead of using the older drivers that came with the tuner, we just used the latest drivers for our card.



**6** Having nullified the threat of driver difficulty, now you have to install the video player software and any Teletext software that comes with your tuner card. If it isn't supplied, get the latest player software from the card's manufacturer.



**7** You'll want some sound with that vision, so if your TV card is plugged into the Line In socket of your sound card, you'll want to un-mute that channel in Volume Control (which is usually in the Multimedia section of Accessories from the Start Menu).



**8** Finally, it's time to turn on and tune in. Run your video player software and enable the TV tuner section. (It can probably play MPEG as well.) Find the channel scan option and it will locate all the decent signals you can receive. One-nil to you!





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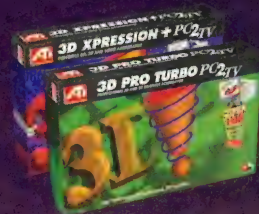
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How to...

# CREATE YOUR OWN A-LIFE ART

Ever fancied having kids? Well, *Cybertation*'s on this month's coverdisc and some strands of electronic DNA are calling you 'Daddy'.

**C**ybertation uses a kind of living electronic DNA to create beautiful 3D graphics on your desktop. Like some sort of genetic scientist going mad with a paintbrush you'll be able to create these evolutionary works of art by breeding and mutating strands of DNA called genomes.

Before you start having notions of being some sort of benevolent father figure, proudly nurturing your little strands of home-grown DNA, remember that in nature only the strong survive, and your babies are about to enter a similarly cruel world. It's all about making the world a more beautiful place; *Cybertation* allows you decide which genomes live to carry on their genes to the next generation and which die out, purely on their aesthetic value. If a particular genome looks beautiful, keep it. If it looks like a six-toed redneck from the film *Deliverance*, kill it

off. This is not a simulation for those who wrestle with their conscience!

This vicious selection method is not just limited to your desktop. At the Notting Hill Web site, users can email their creations to the LifeForms Gallery for others to download and breed. With users sharing their creations and influencing the gene pool, no one can be sure which genes will survive and which will die out.

Unfortunately you'll need the full version of *Cybertation* to go online. However, with our demo you can create your own DNA. The key to using *Cybertation* lies in the Breed and Mutate functions. All the functions



It's life Jim, but not as we know it.

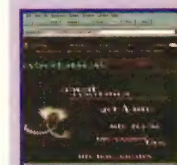
in *Cybertation* are based on the natural laws of reproduction. For example, when you breed two creatures you create children, which share a mix of their parents' genes.

The breed function performs poorly on very simple creatures – you'll just end up with a carbon copy of one of them so you need creatures that have a complicated structure to get good results. With this in mind you're now going to use the breed function to create some children. First make sure the 'Keep Parents' button is depressed, otherwise you'll be overwriting your genomes.

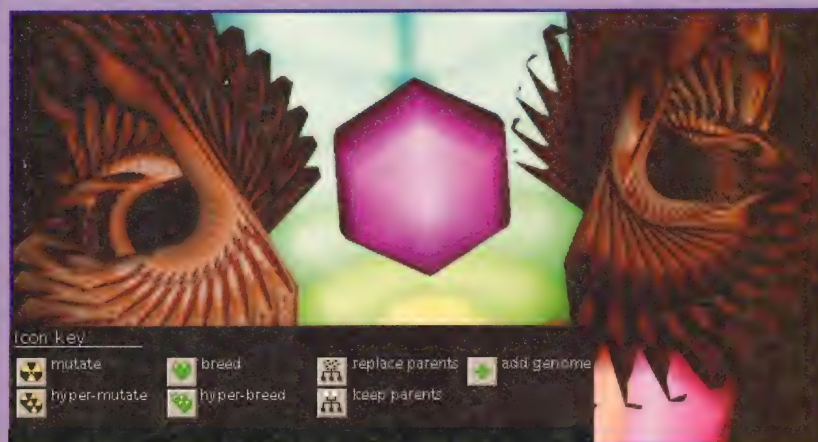
For more details contact Notting Hill on 0171 937 6003.

## A-LIFE ON THE WEB

Check out the *Cybertation* Metropolis at: <http://www.nottinghill.com/cyber>. You'll need the full version of *Cybertation* to download and upload population files. Upgrading to the full version costs just £10. See the upgrading offer in the demo.

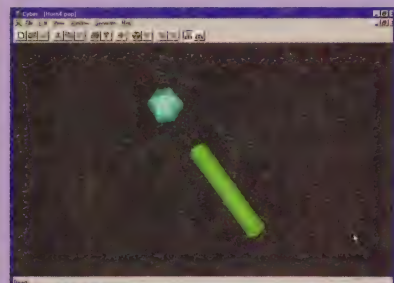


## A NEW LIFE STARTS HERE ...

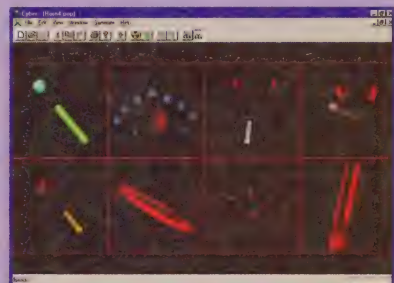


**1** Our demo comes with lots of 'seeds' for you to work with. 'Seeds' are genomes that have progressed beyond a basic level. For this tutorial open HORN4.POP in the POPS/SEEDS directory. You can rotate the genome around in 3D using the mouse.

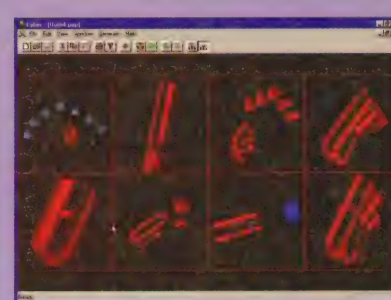
Genome button (a green cross) and add 7 more genomes. Select the HORN4 genome by clicking with the cursor so that its box turns red (all the other boxes should be blue), then hit the Mutate button. The other seven genomes will then become genetic mutations of the original HORN4 genome.



**2** Now we're going to create seven children for HORN4 by using the Mutate button. Click on the Add



**3** Now that we've got a good selection of genomes to breed from select any two of these mutations and click the



Breed button. Select the two you think look the best, because you want the children to be beautiful too. The two mutations you selected will become the first two genomes in your list while the other six genomes will in effect become their children.

**4** Well done, you've created a new work of evolutionary art! You can now continue mutating or breeding to your

heart's content, but remember the number of breeds and mutations you can do is limited in the demo. If you want to see some genomes which have been through several generations then load up the POP files you'll find in the POPS/EVOLVED directory for some spectacular images.



A highly evolved genome.

## THE EVOLUTION OF CYBERTATION

*Cybertation* originally appeared as part of Notting Hill's *Evolution of Life* CD-ROM, which received a well deserved 7 in issue 63 of PCREVIEW. Through a process of natural selection it has since evolved into a program in its own right.

## CD REVIEW

You'll find the demo of *Cybertation* in the Multimedia section of CDREVIEW.



How to...

# MAKE A HOUSETRACK

Pearson's new Music Machine looks like being the easiest music creation tool yet, and we've got a demo on our coverdisc. Here's how you use it.

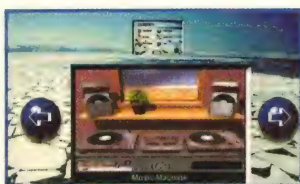
## HELP IS ALWAYS ON HAND.

If you get stuck at any point in Music Machine just press [F1] and some wonderfully detailed help screens pop up.

## Who's IN THE HOUSE?

Musical styles contained in the demo are: Mainstream, Garage, Techno, Trance, Gabba, Rap, Ragga, Intelligent and Dream.

Last month we brought you a preview of *Music Machine*, and this month we've got a fully working demo of the program. With an innovative 3D interface, *Music Machine* is designed to help anyone create their own house tracks using their PC. It assumes no prior musical knowledge, so you're not going to get tangled up in octaves and crotchets, just kicking house beats. In fact, as you'll find out with our tutorial, it's excitingly versatile and very easy to use. All you need to be a master DJ is a pair of good ears. So, without further ado, here's how to get the most out of your *Music Machine* demo...



**1** The first step is to install the *Music Machine* demo from our menu. You'll find it in the Multimedia section. Click the install button and a program group called PNE will be created on your desktop. You'll need Windows 95 to run the demo.



**2** After a short video introduction you'll find yourself in the Control Room. This is the nerve centre of *Music Machine*. From here hotspots take you to all the other rooms. There's a control bar along the bottom of the screen that you can also use to navigate around the disc. You'll notice a green display at the bottom proudly telling you that there's NO SONG.



**3** Well, let's change that right now. You'll notice two library shelves to the right. Click

on them and they'll slide out. One is for loading and saving your arrangements, and the other is for choosing a style of music. Click on the nearest one and you get a choice of musical styles. For the purposes of this tutorial choose Jungle. A display box pops up asking you to choose a Jungle track. Since this is a demo most of the choices are greyed out. Click on Normalise.



**4** OK, you've selected your song type, now click to go to the Arrange Panel. This is where you find out just how easy *Music Machine* is to use. Each song is broken up into four-bar segments, represented by coloured blocks labelled A, B, C and D. These are the building blocks of your arrangement. You construct the song by dragging and dropping these blocks into the segments of the arrangement panel. You'll notice that *Music Machine* has already put a red block into the first segment.

**5** Each coloured block has three different keyboard, bass and drum tracks. Using the Switcher at the bottom of the screen you can choose which of these tracks you wish to play, and which you wish to leave out. For example in this screen shot we have cancelled out all the bass, and used the second



keyboard track with the third drum beat.

Arrange your first segment similarly and click the Play button to hear what it sounds like. When you've heard enough of it just click Stop. Try different keyboard, bass and drum options and listen to the difference. It is important to note that the changes you make affect only the red block in segment one, and not every single red block you add to your arrangement.

**6** Once you've got a mix you like for the first segment then it's time to add some overdubs. Click on the Overdub button and you'll find a new selection screen pops up. *Music Machine* has already added a couple of overdubs



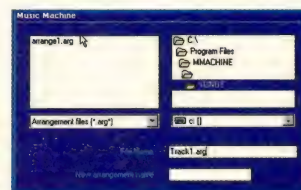
(brass and space4) for you. To add new ones just drag them into the free spaces and click the Play button to test them out. It's possible to load in any WAV file you like as an overdub on your song. Just click on the Load button and find the file you want to import. Using this feature you could, for example, add samples you've recorded yourself in the Recording Studio (another section of *Music Machine*).

**7** In the demo only the first four segments in the arrangement panel are available to you. Fill them up now by dragging colour blocks into them. You might like to use a lot of blocks of the same colour, this way you can get more of a sense of continuity by using, for example, the same drum track throughout the song, but with different bass lines and keyboard



patterns. However, if you want the rhythm to change every 4 bars then it's up to you.

**8** Okay, after a bit of experimenting you've created your first masterpiece. Since this is a precious creation you won't want to lose it. We'll now look at the different ways you can save your song to disc. Go back to the Control Room and click on the sliding bookshelf that is furthest away. Choose the Save option. Save your arrangement as



TRACK1.ARG. You are saving your song as an arrangement (.ARG) file. Files of this type can only be used in *Music Machine*, not by other Windows programs, but require very little disc space.

**9** You've now saved your song as an arrangement file. *Music Machine* also lets you save it in Wave (.WAV) format, so that it can be used by other programs. The disadvantage of Wave files is that they require a lot of disc space – usually a few Mb. To save your file in Wave format go to the Mixer



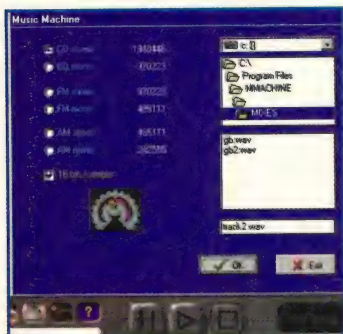
## CD REVIEW

On the disc you'll find a demo of *Music Machine*. Minimum System: 486/66, 8Mb RAM, 30Mb Hard Drive, Windows 3.1 or Windows 95

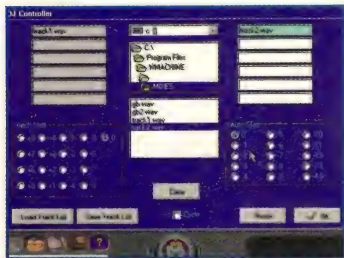


room. In this room you do the final mix of your song. You can adjust the levels of all the instruments and add fade in and fade out effects.

Find a mix you like by adjusting the level of the sliders with your mouse. Save it as TRACK1.WAV in the default directory.



**10** With *Music Machine* you can mix two tracks together in the DJ room using virtual turntables. You're going to need another track to mix with the one you've just created, so go to the Control Room, load in another dance style and create another song just as you did in steps 4 to 7. When you've finished go to the Mixer and save the file as TRACK2.WAV in the default directory.



**11** Now we'll mix both tracks, so go to the DJ Room. First you need to set up your playlists. Click on either the left or right of the record collection box and a DJ Controller dialogue box will appear. The two lists on the left and right are the playlists for the two turntables. Add TRACK1.WAV to the left playlist and TRACK2.WAV to the right playlist. You

can save a Song List from the file dialogue box and load it again by clicking the load or save buttons. The Cycling check-box switches cycling on and off. When cycling is on each deck returns to the start of its list when it reaches the end.

**12** Ensure the Cross-fade Volume control is set fully to the left so you can hear the left hand deck. Click the Play button on the left deck. Before the end of the Song, click the Play button on the right deck. Move the Cross-fade Volume slider control slowly across from left to right, until the right deck is playing at full volume. Hey, you're a DJ!



*Music Machine* can also alter the pitch and playback rate of your song while it is playing. The decks operate like traditional multi-speed turntables. To increase the speed of a deck, click above the slider on the right of the deck. To decrease it, click below the slider. Each click increases the pitch and speed by one degree of change (approximately 0.5 semitones). Using the Pitch Shift enables you to synchronise beat rates on tracks at slightly different tempos. You can set the deck to a particular shift before it starts playing by selecting one of the buttons in the Pitch Shift panel in the file dialogue box.

The final thing to mention in *Music Machine* is the recording studio. If you've got a microphone attached to your PC you can record some samples which you can add to your song at a later date. Just click Record and you're away. (GB)

## Give me my Music Machine!

If you're impressed with the demo of *Music Machine*, why not order your very own copy of the full version. You can do this right away through PC REVIEW. To order *Music Machine* for just £15.99, just fill in your details below and send this order form off to:

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## ISSUE 21 ON SALE NOW



# CD REVIEW

We don't quite see the relevance of the chainsaw to Theme Hospital, but it makes a great picture anyway.

## Theme Hospital

**W**e've no idea where Peter Molyneux from Bullfrog gets his ideas from, but we think he must have been watching an episode of his favourite Australian soap, *The Young Doctors*, when he thought up this one. It's somewhat of a sequel to the successful *Theme Park*, except that instead of detailing the day-to-day running of an amusement park, *Theme Hospital* puts you in charge of your very own (surprise, surprise) hospital.

Die hard *Quake* players may take a while to acclimatise to this idea, but instead of tearing people apart in a gory blood-fest the object of this game is to piece them back together.

When your hospital is up and running patients wander in off the street begging to be cured, and you have to accommodate them. They'll be coming at you thick and fast too, with every manner of ailment, including a virulent strain of the previously little known 'Bloaty Head' disease.

The object of our demo is to cure 20 patients within a year. To do this you have to

virtually build your hospital from scratch and employ all the staff. The demo begins with an easy to follow tutorial to get you started. Go through this first to familiarise yourself with buying objects and building rooms. Once you've done this, you'll have a reception desk and a GP's Office. These are fine to start with but you will soon need to build more rooms to diagnose your patients further, and then to cure them.

When a patient goes into a diagnosis room the Doctor will diagnose him to a certain percentage. The percentage depends on the consulting Doctor's ability and seniority. A patient will keep going to different diagnosis rooms until he is fully diagnosed, then he goes looking for a cure from a GP.

If you notice your staff are becoming tired then build a Staff Room for them to rest in. It might also be a good idea to build some toilets, otherwise things could get pretty messy (we kid you not!). Patients don't like standing up either, so furnish your corridors by buying a few benches for the sickly souls. (GB)



The attention to detail in *Theme Hospital* is amazing, none of the characters ever sit still for long. Each one figits about in its own individual way.

There's both a Windows 95 and a DOS version of the *Theme Hospital* demo on our coverdisc. If you've got Windows 3.1 then you can install *Theme Hospital* from our DOS menu. If you've got Windows95 then you can install it from the Player section of our Windows menu.

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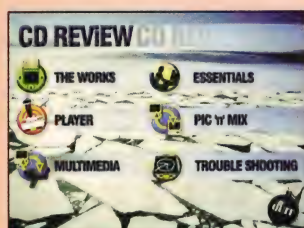
From: Bullfrog/EA 01753 549 442 Minimum System: P60, 8MbRAM, SVGA, 30Mb Hard drive space.



## Getting started

**S**pring is in the air. The evenings are drawing out, the trees are budding and the local water authority is just about to implement a hosepipe ban. What's more, the ice on the CD REVIEW interface is starting to crack – is it because the contents are so hot?

Featuring two separate menus for Windows and DOS, it aims to be all things to all PC users. Before you run our menu, it's a good idea to quit from any other programs that are already running. Here's how to get the menu you want up and running:



Beneath that icy surface lies a simmering volcano of software.

### Windows users

If you're using Windows 95 then pop the CD in the drive, wait a few seconds and the Windows 95 menu autoruns. This feature is not supported on all machines, so if nothing happens click on Start, then select Run. Use the Browse option to locate the file REVIEW.EXE, and you're into the action.

If you're running Windows 3.1, click on File, then Run, then use the browse option to select the file REVIEW.EXE. Double-click the file name to start the menu.

Our Windows menu is split into five sections, the contents of which are described in more detail on the following pages. To get to a section, click on its icon on the main screen and use the arrow keys to get to demos.

You'll notice that we've also included the Troubleshooters guide on the front end – it should help you sort any problems out.

### DOS Menu

Even in these enlightened times, many games require DOS to run, so you'll find most of this month's in our DOS menu. Type PCR or GO at the DOS prompt of your CD-ROM drive. Once the DOS menu is up and running use the arrow icons to scroll through our demo selection.

# POD

**P**OD is one of the first games to make use of Intel's ground-breaking new MMX technology.

Don't worry if you haven't got an MMX computer, our coverdisc also includes a normal Pentium version of the demo, so you can still get a taste the action.

It's the future and a new killer virus has swept the planet. The name of this fearsome scourge is POD. The only way to escape the virus is to leave the Earth, but space on the shuttlecraft is strictly



Get ready for some MMX enhanced racing with our two course POD demo. There's also a choice of two cars.



The futuristic world of POD bears more than just a passing resemblance to Mega City 1. Let's hope Judge Dredd doesn't book you for speeding.

limited. You're racing for the last place on the ship against other drivers who want that seat just as badly as you do.

Despite the outlandish plot POD is basically a fast action racer. If you've got an MMX PC then you've got some super fast graphics to look forward to. You'll also notice the sound effects are vastly improved. Cars in the distance sound far away and get louder as they

get closer.

Our demo features two whole tracks from the full game plus a choice of two different cars. The POD demo is one of those lovely games that runs straight off the CD, so as long as you've got Windows 95, and a fast enough system to run it on you'll be up and racing in no time at all. Use the cursor keys to steer, brake and accelerate.

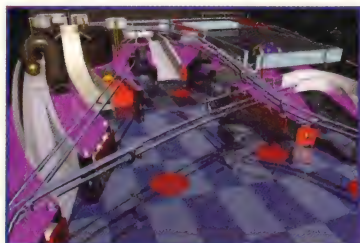
From: Ubi Soft 0181 944 9000 Minimum System: P100, 16Mb RAM, Windows95.

# 2 Up Tilt Outlaws

**W**hy are there so many pinball games out there for the PC? Somebody must be buying

them because there are hundreds. The latest addition to the Pinball fraternity is 2 Up Tilt from SCI. What makes 2 Up Tilt special is that there's a multiplayer option in which two networked players can play on the same table.

Our demo gives you a sneak preview of the single player game by offering you unlimited access to one table. See the inlay card of the CD for a full key listing. The game runs in both DOS and Windows 95.



Twiddle your flippers with our 2 Up Tilt demo. It features a fully playable table very much like this one.

From: Sci 0171 585 3308  
Minimum System: 486DX/66, 8Mb RAM, 7Mb hard disc space

**O**utlaws combines first-person gun slinging action, with stunning cinematic cutscenes, to create an exciting Wild West adventure. You are former marshal James Anderson, on a mission to retrieve your daughter, who has been kidnapped by an evil land baron. However, it won't be easy; out to stop you, are the single largest group of evil-doers, misanthropes, criminals, and flat out bad guys to ever gather in the old west. Our fully playable demo requires Windows95 with DirectX installed. You can install DirectX from the Essential section.



Don't look the other way you fool, he's going for his gun! I guess those stupid Outlaws will never learn.

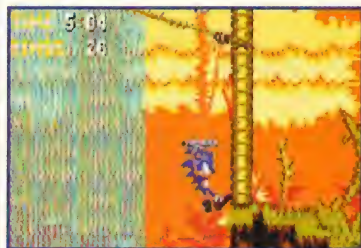
From: Virgin 0171 368 2255 Minimum System: Pentium 60, 16Mb RAM required, 21Mb hard disc, Windows95, DirectX

# Sonic & Knuckles Collection

**S**ave the world from destruction by defeating the evil Dr. Robotnik with your choice of

Sega's favourite heroes: Sonic, Knuckles and Tails. Blast through huge zones, check out cool 3D special stages, discover bonus levels, and compete in a two player split-screen competition. Our demo contains the entire first level and delivers hours of great PC gameplay.

You'll need DirectX installed to run the game. It's available in the Essentials section of our disc.

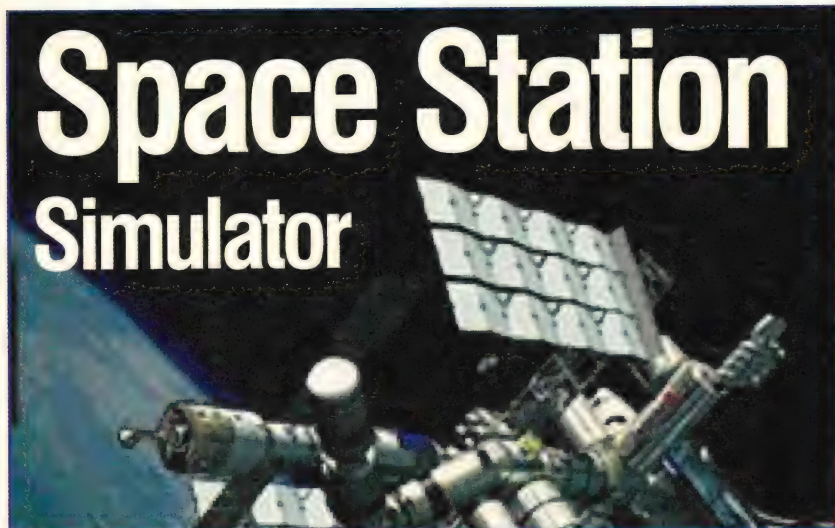


Join the cute blue hedgehog with the swept back hair in our huge demo of the Sonic and Knuckles collection. There's an entire level to whiz through.

From: SEGA 0181 995 3399  
Minimum System: P75, 8Mb RAM, DirectX, Windows95.



# Space Station Simulator



With our demo you can see the station as it will appear at the end of 2002, fully assembled and already busy conducting research for scientists from around the world.

**T**he largest structure ever assembled in space, the International Space Station will require unprecedented co-operation between the nations involved in its construction. When it is completed the station will have brought together traditional competitors to create an interna-

tional scientific community in orbit. It offers long duration research in a microgravity environment, enabling fundamental research in such diverse fields as physics, biology, medicine, chemistry and engineering technology.

With *Space Station Simulator*, using Maris' VR enhanced by Intel's Pentium

processor with MMX technology, you can work with the actual modules currently being developed for the real Space Station to construct your own station. It delivers a photorealistic, interactive rendering of the inside and the outside of the Space Station in an absorbing, total space experience. In

addition, Maris' *RedShift* engine precisely calculates the sky view.

Our demo is huge. You can explore both inside and outside the space station. The idea is to add new parts to the space station, then go exploring it. Obviously the number of new bits you can add is limited in the demo.

From: Maris Multimedia 0171 488 1566 (Order direct on 01932 781 108) Minimum System: P70, 8Mb RAM (16 Recommended), Windows 95.

## Cybertation

**F**or too long art has been in the hands of, well, artists. *Cybertation* aims to change all that by mixing biology and 3D graphics together to create works of art that are developed by an evolutionary process.

You mutate and breed different strands of electronic DNA, called genomes, according to the laws of nature. The results are weird and wonderful works of art that you can rotate in 3D.

When you've bred some you like enough you can upload them to the *Cybertation* Web site. On page 111 you'll find a tutorial that shows you how to breed your own A-Life art.



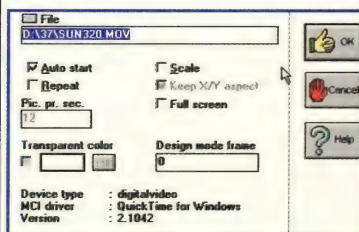
Breed genetic works of art with our engrossing *Cybertation* demo. Here at PCREVIEW we like things in red.

From: Notting Hill 0171 937 6003 Minimum System: 486DX2/66, 8Mb RAM, 10Mb Hard Drive, Win 95 or 3.1.

## Medi8or 3.0 Entree

**M**edi8or is a multimedia package, in which you combine objects like sound, pictures, text, video, and graphics in one unit (or document). This makes *Medi8or* ideal for commercial use, product catalogues, teaching, information systems, or in the case of our tutorial on pages 106 and 107, a multimedia single. Since you primarily work page-wise in *Medi8or* this makes the program very user friendly and easy to work with.

See the Order form MWORDER.TXT in the MULTIM\MEDI8OR\ directory for a special upgrade price of only £150 to *Medi8or Professional*, a saving of £25!



*Medi8or* is used to produce the interactive single for pop group 37. Expect a full review of the professional version next issue.

From Matchware Ltd 0181 940 9700 Minimum System: 386, Win 3.1/95, VGA display driver, True-Type fonts.

## Music Machine

**M**usic Machine is the latest in do-it-yourself music creation software.

Specialising in all types of house music it's designed to be extremely easy to use. Our demo has full functionality, but you're limited to four music segments on the Arrange panel, although with the loop facility you can make the song quite long. Music styles contained in the demo are: Mainstream, Garage, Techno, Trance, Gabba, Rap, Ragga, Intelligent and Dream. The tutorial starts on page 112.



Our Music Machine demo has every thing you need to be a kicking DJ including a nice set of decks.

From: Pearson 0171 331 3920 Minimum System: 486/66, 8Mb RAM, 50Mb Hard Drive, Win 95 or 3.1.

## Demonstration The Filter Queens

**W**elcome to *Demonstration*, the Enhanced CD from pop group The Filter Queens. Enhanced CDs contain both audio and computer data – they can be played on either a normal CD player, or used as a CD-ROM. This Norfolk-based outfit produced their CD on a budget of just £1000. Our demo shows you around the disc, but contains just one song. However, you can read the lyrics to all their other songs and watch a few video clips. The full version can be bought via mail order for just £12.



Explore the enhanced CD from pop group The Filter Queens. By the way, this isn't a picture of their lead singer.

From: The Filter Queens 01362 637 817 Minimum System: 486, 8Mb RAM, Win 95 or 3.1.



## MASTERCLIPS

**M**asterClips is a CD collection containing a staggering 150,000 premium images, fonts, sound samples and videos. PC REVIEW and IMSI have teamed up to bring PC REVIEW readers the chance to buy the full MasterClips 150,000 package at a special rate of just £59.95 (plus £6.50 delivery and VAT = £78.08). The regular selling price is £84.95 + VAT.

To order the full collection of 150,000 photos, illustrations, fonts and audio files, all you have to do is type your details into the form you'll find in the PICMIX/MASTER directory and print it out. Then send it off, with your money enclosed, to the address or fax number quoted. Alternatively, telephone or email IMSI with your order quoting the March/April/May issue of PC REVIEW.

The third part of our great MasterClips give away features another 100 samples. In the PICMIX/MASTER directory on our CD you'll find the following directories:

### PHOTOS

Professional quality photos – great for backdrops.

### CLIPART

Some fantastic clip art.

### FONTS

Contains sample fonts and a help file which shows you how to install them.

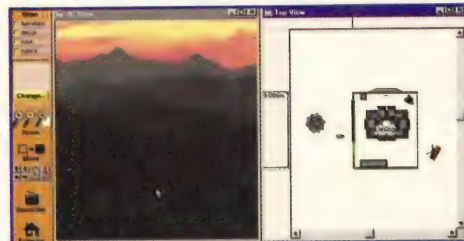
### SOUNDS

Contains sample WAV files.



From: IMSI ☎ 0181 581 2000  
Min System: n/a

## Visual Home Deluxe



We're not quite sure what the mountains are for in the Visual Home demo. They must be the view from your window.

**W**ritten to take advantage of MMX technology, *Visual Home Deluxe* contains all the design capabilities of *Visual Home*, plus it delivers the added power and realism provided by Intel's MMX technology. You can create a floor plan to visualise a design in 3D.

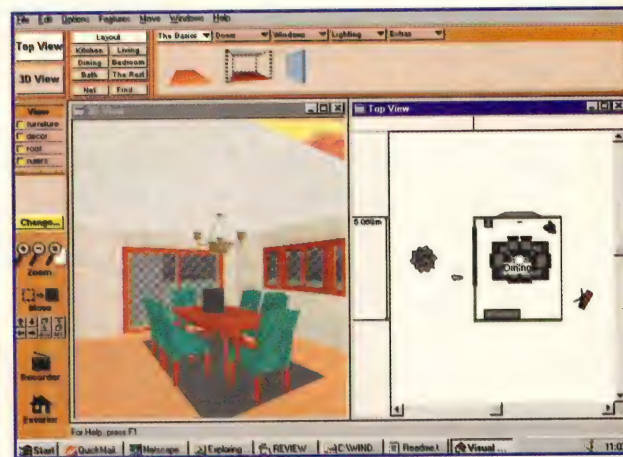
If you've got an MMX PC then you can walk through your design and save your favourite walk in your own walk-about movie.

In order to produce a demo of a program which normally exceeds 300Mb in size to something small enough to fit onto a cover disc,

FastTrack has had to remove the majority of the original 2000+ 3D models. However, there are still approximately 250 3D models covering the entire range of the toolbar. You will find only the first models from each of the object toolbars is available.

When you load up *Visual Home* you can choose to start in one of four ways. Unfortunately, the Guided Tour option has also been removed, so you can't click on it. For a quick start try Start with a Sample Home.

We strongly recommend that you use 256 (8 bit) colour. The program will run faster, use less memory, and will



With our demo you can sit around the table of your own virtual home. You'll find the dining room has already been designed, just load it up.

probably look better than if you run it in 16 or 24 bit colour. (Some items will not show on the demo when using 16/24 bit colour). If using 16bit colour, some of the models will appear as grey boxes. Reduce the colour to 256 colour for the full range of available images. In general the more physical memory (RAM) you have, the better *Visual Home* will perform. Obviously, there is a big difference between 8 Mb and 16 Mb.

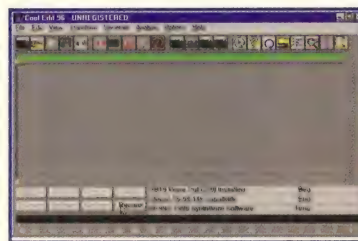
To uninstall *Visual Home* double-click the file REGCLR2.EXE. You'll be asked to find the install.log file. You'll find it in WINDOWS\SYSTEM. Locate it with the browser and click OK.

From: FastTrack 01923 495 496 Minimum System: 486DX/66 (P100 with MMX recommended), Windows 95, 8Mb RAM (16 recommended), 12 Mb hard disc.

## Cool Edit 96

**C**ool Edit is a digital sound editor for Windows. You might think of it as a paint program for audio. Just as a paint program enables you to create images with colours, brush strokes and special effects, *Cool Edit* enables you to 'paint' with sound.

There's also a wide variety of special effects to touch up your sounds: reverberation, noise reduction, echo and delay, flanging, filtering, and many others. Basically it's everything you need in one easy to use package. Our demo limits the number of features you can use together, although all are available.

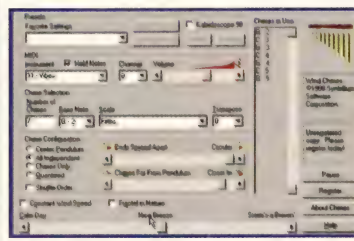


Converting and editing sound files will never be a problem again with Cool 96.

From: Syntrillium Software Corporation  
Email:sales@syntrillium.com 001 602 941  
4327 Minimum System: 486DX2/66, 8Mb RAM, 3Mb Hard Drive, Windows 95.

## Wind Chimes

**W**e've all heard chimes playing in the wind. *Wind Chimes* puts these sounds on your computer and lets them run in the background while you work. It can also do much more: Select the 'Piano Bar' pre-set, and you're sipping ice tea at a favourite café. Try 'Glorious Sunrise' and you're lying on a secluded beach in the early morning. 'Acoustic Journey' boldly leads you to new harmonic and rhythmic concepts in music. Best of all, you can create your own ambient sounds. You'll never hear the same pattern twice, because *Wind Chimes*, like the wind, is always changing.



*Wind Chimes* plays soothing New Age sounds in the background as you work. It beats computer related stress.

Syntrillium Software Email: sales@syntrillium.com 001 602 941 4327 Minimum System: 486, 8Mb RAM, 0.5Mb Hard Disc

## iPhoto Express

**I**Photo Express is a great way to have fun with your photos. You can easily make personalised invitations, greeting cards, calendars and posters, announcements and much more. It's also simple to create your own screen savers, slide shows and Windows wallpaper too.

*iPhoto Express* gives you hundreds of ways to decorate your photos. You can add text in exciting styles, paint and apply special effects. You can even remove red-eye and combine photos for eye-catching montages. This demo is valid for a period of 30 days from the date of installation. After this time, the software will automatically disable itself and you will have the option of removing it.



Here's one of the pre-prepared greeting cards you'll find waiting for in our fully interactive *iPhoto Express* demo.

From: BIT 01420 838 11 Minimum System: 486DX2/66, 8Mb RAM, 20Mb Hard Drive, Windows 95



# Pic 'n' Mix

Put your hand in the jar and pull out a sweetie.

Welcome to another varied selection of shareware programs specially selected by PC REVIEW. First out of the bag is *Image Browser*. This handy program lets you view thumbnails of your graphics file without cluttering up your hard drive with nasty little files. All graphics formats are catered for.

Using *WebExpress 2.0*, you will be amazed at how fast you can create a great-looking Web site with its visual design tools. By visual design, we mean you'll use tools to build up your Web site just as it will look when loaded into a browser. You won't be side-tracked by the clutter and confusion of HTML codes – instead you can focus on your message and its presentation.

The purpose of *Marketeer* is to allow easy control of all your discussions with your friends or business contacts. It tracks phone calls, correspondence, meetings, reminders, follow-ups and To Do lists. The built-in word processor works much like *MS Word* and is specially integrated with the company and contact records for mailshots.

## Image Browser

From: Soft Concepts ☎ 01560 322 619  
Min System: 486, 8Mb RAM, 1Mb hard disk space, Windows 95.

## WebExpress

From: Thompson Partnership ☎ 01889 564 601  
Min System: 486, 8Mb RAM, 4Mb hard disk space, Windows 3.1 or 95.

## Marketeer

From: Sterling Data Services ☎ 0734 427 333  
Min System: 486, 4Mb RAM, 5Mb hard disk space, Windows 3.1 or 95.

## Essential Selection

A whole stack of vital PC tools are filed under the PC Essentials section of our coverdisc menu.

### Direct X

Developed by Microsoft, *DirectX* increases the speed of graphics and sound processing under Windows 95.

### Video

Run-time versions of two video players: *Quick Time* for Windows 2.03 and *Video* for Windows 1.1.

### Graphics

*Paint Shop Pro* is our favourite graphics utility. You'll find both Windows 95 and Windows 3.1 versions on the disc.

### Compression

With top compression utility *Winzip*, you can free up hard disk space and also shift bytes on-line for less money. It's the PC's leading file compression format.

### Word Express 2.0

*Word Express* is a fully-featured word processor which does all of the things that its more expensive cousins do at a fraction of the cost.

## Troubleshooters guide to CD REVIEW

### Having a problem?

If you're having a problem with a CD REVIEW demo we suggest you first read the corresponding entry in these disc pages. If you can see the files on your CD then the chances are that you don't have a faulty CD and may need to read through the Memory section below. If your CD-ROM drive refuses to run, or read the disc, then you should send your CD to the following address and a new, working version will be returned to you within 28 days: PCR67 CD Returns, Diskxpress, 7 Willow Court, Bourton Indus Park, Bourton-on-the-Water, Gloucestershire, GL54 2HQ.

### Windows 95

Some DOS Games have problems running in Windows 95. We've included an option to run all the DOS games that we know work in Windows 95 from our menu, but we can't guarantee they will work on all systems. If you find you're having trouble running a DOS game in Windows 95 then try running it from our DOS Menu. First select Restart in DOS Mode from our ShutDown Menu, then when DOS has started type D:\PCR, where D is the prompt of your CD Drive.

### Install and run options

Make sure you select the default Installation path for all demos, otherwise when you click the Run button nothing will happen.

### Memory

Configuring your PC with just the right amount of free memory can be a tricky as crossing the Alps single-handed, but don't worry, simply follow these easy tips and everything should be fine.

If you have trouble running a demo it might be because you need to free up more conventional memory. Conventional memory is the memory below 640K. Even if you have a PC with 8Mb of RAM, that doesn't mean that you'll automatically have enough conventional memory to run a demo.

To find out how much free conventional memory you have type MEM [Enter] at the DOS prompt. If the figure beside the line 'largest executable program size' is less than about 550K then you're system probably isn't set-up properly.

You can free up more conventional memory by loading the EMM386 driver, which allows you to move other device drivers out of conventional memory and into upper memory, thus freeing up more space. To add the EMM386 driver you need to edit your system files (the AUTOEXEC.BAT and CONFIG.SYS files). Make a copy of them before editing. At the C:\> prompt type:  
COPY C:\CONFIG.SYS CONFIG.SYS  
COPY C:\AUTOEXEC.BAT AUTOEXEC.BAK  
Then, if you have any problems later on you can return to these files by typing:  
COPY C:\CONFIG.BAK CONFIG.SYS  
COPY C:\AUTOEXEC.BAK AUTOEXEC.BAT

To edit your system files type EDIT followed by the name of the file. The following lines should be in your CONFIG.SYS file:  
DEVICE=C:\DOS\HIMEM.SYS  
DEVICE=C:\DOS\EMM386.EXE NOEMS  
DOS=HIGH, UMB

Any lines starting with DEVICE should be changed to DEVICHIGH.  
In the AUTOEXEC.BAT any device being loaded should now be loaded into high memory. For example the line:  
C:\MOUSE\MOUSE should read:  
LH C:\MOUSE\MOUSE

These changes should result in greater free conventional memory. Another way to free up more conventional memory is to remove any Terminate and Stay Resident (TSR) programs that are automatically loaded by the system files. The following lines are not essential for using CD REVIEW. If you see them in your system files, disable them by putting REM at the start of the line.

In Config.sys you may want to rem out any line containing SMARTDRV.SYS, DISPLAY.SYS or COUNTRY.SYS.

In Autoexec.bat you could remove any line containing SMARTDRV or DOSKEY and any line that loads a memory resident virus checker.

You can return your system to its previous state by removing the REM commands, then rebooting your system. Remember, any change to a system files will not take effect until your system has been rebooted.

### EMS Memory

Some PC games require EMS memory rather than XMS memory. To configure your PC for EMS memory change the line in your CONFIG.SYS reading:

DEVICE=C:\DOS\EMM386.EXE NOEMS to:  
DEVICE=C:\DOS\EMM386.EXE RAM

and reboot your machine for the changes to take effect. You will probably have to change back to XMS memory by reversing the above change for your other programs to work.

### DirectX

*DirectX* is a series of drivers developed by Microsoft to increase the speed of graphics and sound processing under Windows 95. In particular, games and multimedia applications demand the fastest possible display performance. The drivers are still in development however, and there have been reports of *DirectX* overwriting default graphics drivers and thus crashing Windows 95.

If, after running a *DirectX* demo from CD REVIEW, you experience graphics problems when restarting Windows 95, you will need to restore the original drivers. To do this:

1. Shut down your PC.
2. Restart Windows in safe mode. To do this, press [F8] when your PC reports it is 'Starting Windows 95'. Then select 'Safe Mode' from the menu.
3. At the desktop, insert the CD REVIEW disc. Press Start and then select Run from the Taskbar.
4. At the prompt type D:\DIRECTX\DXSETUP.EXE (where D: refers to the letter of your CD drive).
5. The *DirectX* set-up program will now appear. Select 'Restore Windows 95 Drivers' to return your PC to normal.

We should add these are problem are rare, and they should not put you off enjoying the contents of CD REVIEW.

### Disclaimer

CD REVIEW is thoroughly checked for all known viruses, and independently certified before duplication. While every care is taken in selection, testing and installation of CD REVIEW, Future Publishing cannot accept responsibility for loss or damage occurring during its use. You are strongly advised to have recent, verified back-ups of all important files before installing any new software.

### Support

If you need help getting a demo to work then phone our Technical Support line on 01225 442244 and ask for READER SUPPORT. Better still, e-mail support@futurenet.co.uk.

## RUNNING PROGRAMS MANUALLY

### Windows 3.1

To run a program manually using Windows 3.1 select File from the Windows *Program Manager* menu, then select Run from the pull-down menu. Use the Browse option to select the directory, and then the file. Double click on the file name to run it.

### Windows 95

Using Windows 95, click the Start button from the menu bar, then select Run. Use the browse option to select the directory, and then the file.

### DOS

Type CD followed by the directory name at the DOS prompt of your CD-ROM drive, then press [Enter]. Finally, type the name of the file and press [Enter].

## Program directory and filename

### 2 Up Tilt

D:\TWOUP\INSTALL.BAT

### Compuserve

D:\WORKS\COMPU\CIS301\SETUPEXE

### Cool 96

D:\WORKS\COOL96\C96SETUPEXE

### Cybertation

D:\MULTIM\CYBER\CYBER95\SETUPEXE

### iPhoto Express

D:\WORKS\PEXPRESS\SETUPEXE

### IMSI Master Clips

D:\PICMIX\MASTER

### Medi8or 3.0 Entrée

D:\MULTIM\MEDI8OR\INSTALL.EXE

### Music Machine

D:\MULTIM\MUSIC\MMCDemo.EXE

### POD

D:\PLAYER\POD\NORMAL\WINPOD.EXE

### Quake Levels

D:\QUAKE

### Sonic and Knuckles Collection

D:\PLAYER\SONIC\SONIK3K.EXE

### Space Station Simulator

D:\MULTIM\SPACE\SSS\_DEMO.EXE

### Theme Hospital

D:\SETUPEXE

### Visual Home

D:\WORKS\WORKS\HOME\SETUPEXE

### Wind Chimes

D:\PICMIX\WCHIMES\WC1SETUPEXE

## Contacting Reader Support

Before contacting our technical support department please make sure that you have all the relevant information that we will need. We have included a program on CD REVIEW to help you with this. Just follow the CD REVIEW and run it from the trouble shooting area of our main interface. When finished, save it as a text file or print it out. When you call in, having all the details to hand will speed up the help process.



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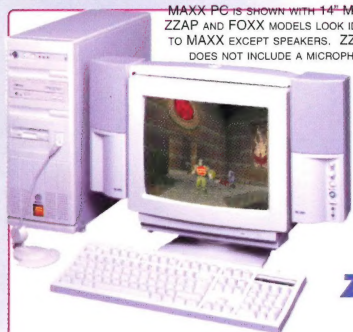
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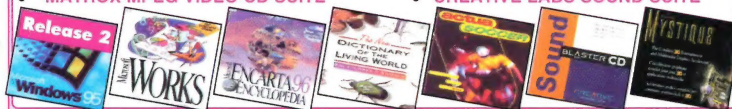
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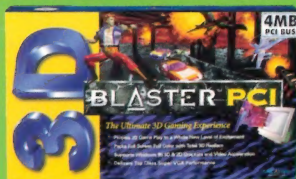
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